

REPORT
OF
ALASKA INVESTIGATIONS
—
1914



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1914

DEPARTMENT OF COMMERCE
BUREAU OF FISHERIES

REPORT OF ALASKA INVESTIGATIONS IN 1914

By *E. Lester Jones*
LESTER JONES
DEPUTY COMMISSIONER OF FISHERIES

DECEMBER 31, 1914



WASHINGTON
GOVERNMENT PRINTING OFFICE
1915

SH222
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1914

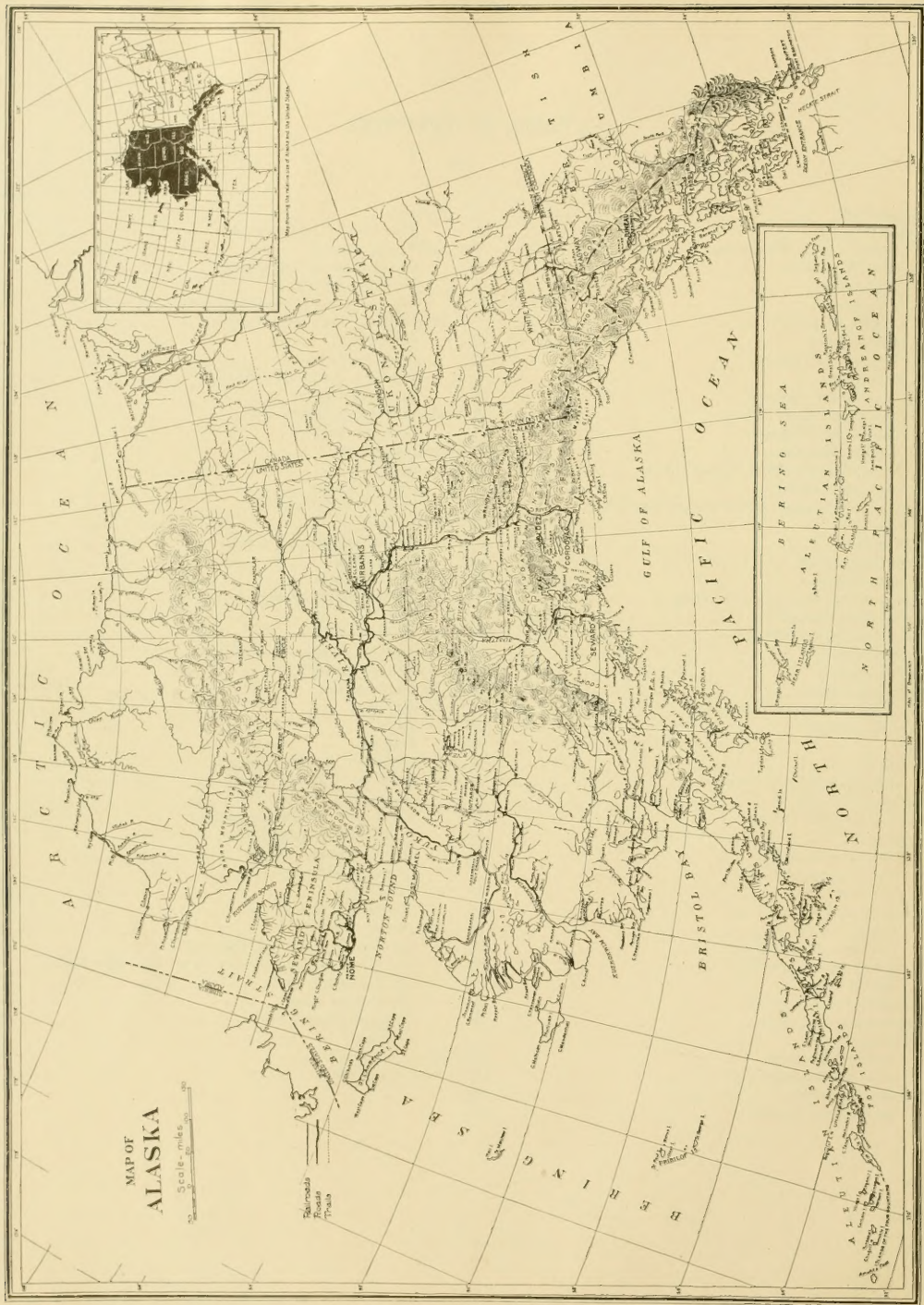
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REPORT OF ALASKA INVESTIGATIONS.



REPORT OF ALASKA INVESTIGATIONS IN 1914.

By E. LESTER JONES,
Deputy Commissioner of Fisheries.

DEPARTMENT OF COMMERCE,
BUREAU OF FISHERIES,
Washington, December 31, 1914.

SIR: I submit herewith a report on my special investigations in Alaska, for transmittal to the Secretary of Commerce and the President.

INTRODUCTION.

By direction of the Secretary of Commerce, I was instructed to proceed to Alaska (1) in order to make a thorough survey and investigation of the various fishery industries, (2) to visit the fur-seal fisheries on the Pribilof Islands and make studies in connection therewith for the purpose of formulating a more definite and businesslike policy for the administration of those islands, and (3) to inquire into the status of the minor fur-bearing animals, including both the matter of the protection of the wild stock and the development of the industry of rearing such animals in captivity.

In my report submitted herewith it has been my endeavor to avoid more than an occasional and passing reference to matters of a statistical or historical nature, since these features are quite thoroughly covered in various reports already published. Attention has been given primarily to matters which have a material bearing upon the maintenance of those Alaskan industries over which the Department of Commerce exercises jurisdiction and which seem to require readjustment in accordance with changed conditions.

It has been my constant endeavor to view the situation from a practical and impartial standpoint with the view of suggesting certain changes deemed essential to the public welfare, bearing in mind at the same time the necessity for giving equitable consideration to all private interests which may be affected by such changes.

The field work occupied a period of between four and five months, from the latter part of May to the first part of October. Visits were made to about 50 canneries, salteries, and mild-curing establishments in southeastern, central, and western Alaska; numerous fox farms in various regions were inspected; considerable time was spent on the Pribilof Islands; and detailed attention was given to administrative matters connected with the recently established Aleutian Islands Reservation.

The steamer *Albatross*, Lieut. L. B. Porterfield, U. S. N., commanding, was placed at my disposal, and I spent practically two months aboard this vessel in central and western Alaska. In southeast Alaska I was aboard the small steamer *Osprey* for about 60 days. These vessels are owned by the Bureau of Fisheries.

Some of the important places visited are quite remote and inaccessible, and had it not been for vessels specially available for the purpose it would have been impossible to reach them during my trip, notwithstanding the fact that I spent more than four months in Alaska. It is my wish to emphasize the point that because of the great distances involved, and as at times there is no service by commercial boats, and when there is it is very unsatisfactory, it becomes urgently necessary in the event of conducting any competent investigation of the fisheries of Alaska that a good seagoing vessel be provided. Without the *Albatross* this past season, the results of my trip would have been anything but satisfactory.

It is my desire to make the fullest possible acknowledgment to Lieut. L. B. Porterfield, commanding the *Albatross*, for the numerous courtesies and the invaluable assistance rendered so freely and pleasantly during the two months I spent aboard that vessel. The officers and crew also rendered efficient assistance.

The photographic records of fisheries operations, fox ranching, seal life on the Pribilof Islands, and other less important subjects, which show the results of the season's work, were secured partly with the cooperation of Mr. W. H. Burnet, who accompanied me throughout the entire trip. The handicap under which we labored in securing these pictures is shown by the fact that the weather during nearly 80 per cent of the time spent in Alaska was rainy and foggy.

SALMON INDUSTRY.

FEDERAL CONTROL OF FISHERIES.

Any division of authority between the Department of Commerce and officials of the Territory of Alaska in administering the Alaska fisheries laws would be detrimental to the salmon and other fishery industries. It would so confuse conditions that neither the officials of this Department nor the Territory would have adequate authority. What is needed is not divided power, but the concentration of authority under one responsible administrative department.

It is my undivided and unbiased belief that a continuation of the present investment of such authority in the Department of Commerce will be fruitful of much more real good to the fisheries of Alaska than any division of authority.

The contention of some in Alaska that the Territory can better administer its own fishery affairs is susceptible of adverse criticism because of the strife and friction between the diverse local interests that would almost inevitably follow such efforts to handle the situation. This has been the result in some States, and it is therefore my honest belief that full Federal control of the fisheries of Alaska, as impartially and honestly administered by the Department of Commerce through the Bureau of Fisheries, will result most beneficially to all interests concerned. And, furthermore, owing to the vast amount of practical and scientific knowledge and information acquired and developed during an extended period by men of unusual training and experience in the Bureau of Fisheries, any idea or thought of transferring jurisdiction over this highly important industry to another institution or board of the National Government should be dismissed at once, as such action would be a serious mistake and would prove a handicap to the greatest development of Alaska's rich fishery resources.

GENERAL METHODS.

There is probably no part of this great industry that has created more controversy than the methods employed in catching the 60,000,000 salmon which are taken each year from the waters of Alaska. It is an easy matter for those who favor certain forms of fishing apparatus to blame those using other forms for the alleged diminution in the supply of salmon, but it is not easy for a disinterested person to ascertain the relative effect and place the responsibility for any injury that may result from any abuses of these methods.

The four principal methods are trap fishing, purse seining, haul or beach seining, and gill netting. Trolling for king salmon is placed under another head, as it is so distinctly a separate business and so closely affiliated with mild curing that an independent discussion will prove more helpful than to take it up with the principal methods used in catching Alaska's enormous production of sockeye, humpback, silver, and chum salmon. I have studied these four methods of fishing from an entirely unprejudiced standpoint, and I have noted the various conditions and have viewed them from every angle. In some parts of Alaska certain conditions obtain, in others they are entirely different. Therefore, I will endeavor in this part of my report, as well as under other heads, to cover all phases of the question, looked at from all sides.

One of the things that impressed me most forcibly was the fact that everyone that used any particular kind of fishing gear did so *because it suited his conditions best and because it was the best business method and produced the best results*. This feature alone is what every business man tries to bring out most clearly in conducting any enterprise.

TRAP FISHING.

In Alaska to-day there are some 275 traps. Of these, approximately 65 per cent are in southeastern Alaska. The condition of the water, the effect of the tides, and the swiftness of the current, the character of the bottom, and depth of water are all contributing reasons why the traps are used in various places.



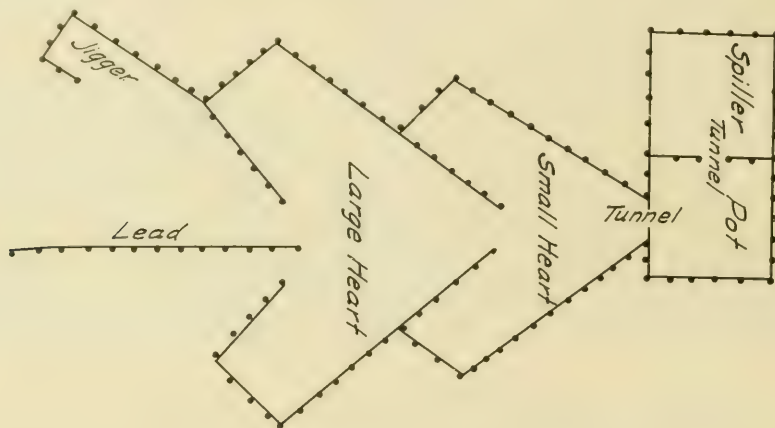
CANNERY AT SANTA ANA.



CANNERY AT CHIGNIK.

Fewer men are required to operate a trap than are needed to operate a haul or a purse seine. Therefore, other things being equal, this is a good reason why the use of traps is proper for the sake of economy in labor. Any successful business concern in the world to-day believes in the most up-to-date methods. For example, if a man hired 50 clerks at a salary of \$1,000 a year each and was offered a machine costing \$25,000 which would enable him to dispense with 40 of these clerks at a saving of \$15,000 a year, not to mention the time saved, I venture to say there is not a business concern but that would install the machine without delay. This is the exact situation in regard to the fish trap. It saves labor and time, and I quite agree that the success of an industry means the turning out of a good article with the least possible expense and in the shortest possible time.

The principal advantages of the trap are these: First, the fish remain alive in the pot or spiller, thus permitting their delivery at the cannery in better shape than when taken by any other method of capture in vogue to-day, and second, the trap is stationary and the Government official, or inspector, always knows where to locate it, thus permitting of regulation and control, quite difficult or almost impossible with purse seines and other mobile forms of apparatus.



Plan of typical Alaska fish trap.

Now as to the objections: First and foremost is the fact that traps catch not only salmon, but other kinds of fish, which under present conditions are not utilized. Second, during the weekly close period the owners of traps say bad weather is the cause for not complying with the law and closing every Saturday night on the hour; but while this may occasionally happen the closing is more often neglected intentionally. A popular objection to the trap is the fact that it fishes day and night, and thus takes too many fish, but this objection is without merit, for the function of a trap is to catch fish, and, as mentioned before, all fish remain alive until ready to be removed from the pot or spiller.

I would suggest a curtailment in the activities of traps, on account of the ever increasing fishing and the diminution in some sections of the supply of salmon. It is evident that the leads, which at the present time may be of any length, should be limited. In waters tributary to Bering Sea I would recommend that leads not exceeding 3,000 feet be permitted and that in the rest of Alaska the maximum length should be 2,500 feet. In some cases the large number of traps placed close to the mouths of streams makes it almost impossible for an adequate supply of breeding salmon to escape them and ascend to the spawning grounds. And especially is it important to keep free the entrances to those waters on which hatcheries are being operated. It appears necessary that no trap shall be erected closer than one-half mile to the mouth of any stream and that those already erected within this distance shall be removed. The prohibition of traps and other fishing gear within waters less than one-half mile from the mouth of any stream is to my mind the most important feature in reference to the preservation of the future supply of salmon in Alaska. As the law reads to-day, traps must be at least 600 yards apart laterally and 100 yards apart endwise. These distances are inadequate, which is easily proved by the congestion of fishing paraphernalia



IMPROPER METHOD OF OPENING HEART WALLS OF TRAP,
SHOWING CONDITION AT EXTREME LOW TIDE.



IMPROPER METHOD OF OPENING HEART WALLS OF TRAP,
MEDIUM STAGE OF TIDE.



ABANDONED TRAP OVER 3,000 FEET LONG.



FLOATING TRAP.

INDIAN FISHERMEN UNLOADING SOCKEYE SALMON
SEETUCK RIVER.

BRAILING A TRAP.



INDIANS HAULING BEACH SEINE. SEETUCK RIVER. THE CHIEF OF THE TRIBE IS AT LEFT OF PICTURE.



CANNERY AT SITKOH BAY.



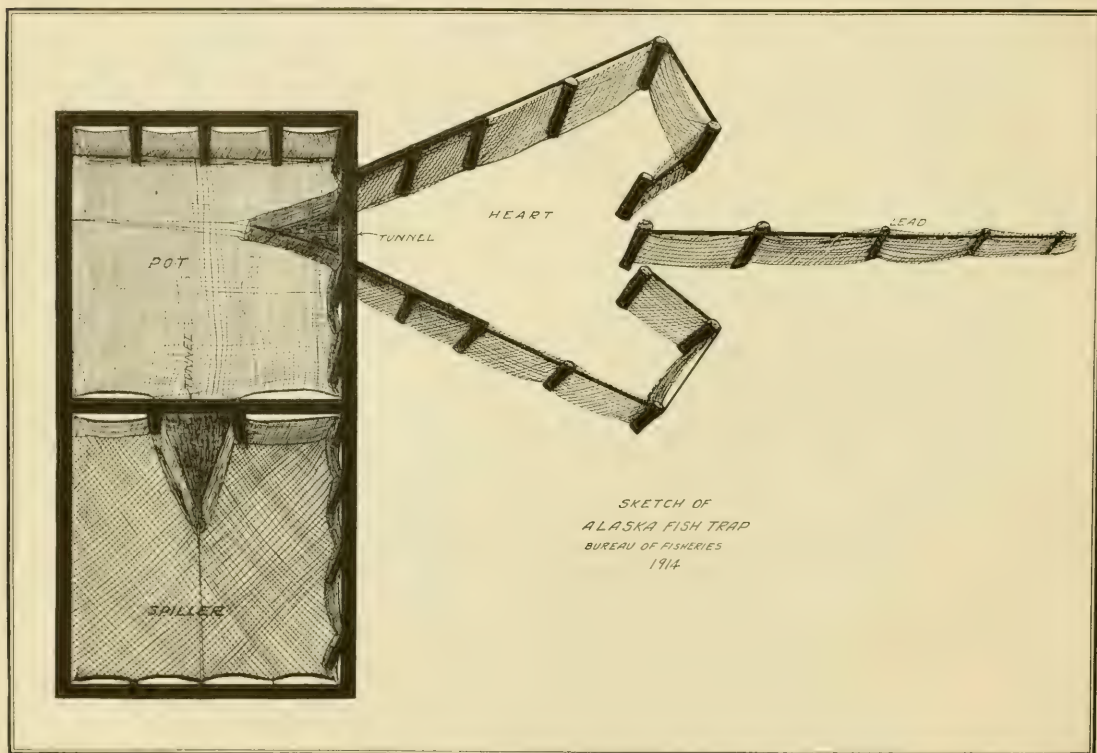
BEACH SEINING, SEETUCK RIVER. LOADING THE CATCH OF SOCKEYE SALMON.

that exists in southeastern Alaska. A distance interval of at least 4,000 feet laterally and 1,000 feet endwise seems fair and necessary.

The jigger, concerning which there has been much comment and criticism, should not be prohibited, as it is an effective and proper part of the trap, the same as the heart or the lead, or any other part. I think, however, that its length should be limited to 50 yards

TRAP SITES.

There has been much controversy regarding trap locations and the plan that they should be sold outright to their present holders and other sites sold to those who make application. The proposal to sell sites does not meet with the approval of all concerned. I do not think it wise myself, but I do believe



Sketch of Alaska fish trap.

that where the traps on the present sites meet the requirements of the law and as long as they continue to do so it is proper and right for the United States Government to protect their holders.

On every trap that is being constructed the name of the owner should be attached in a conspicuous place in the regulation letters required by law, and not placed on it only when the trap is in operation.

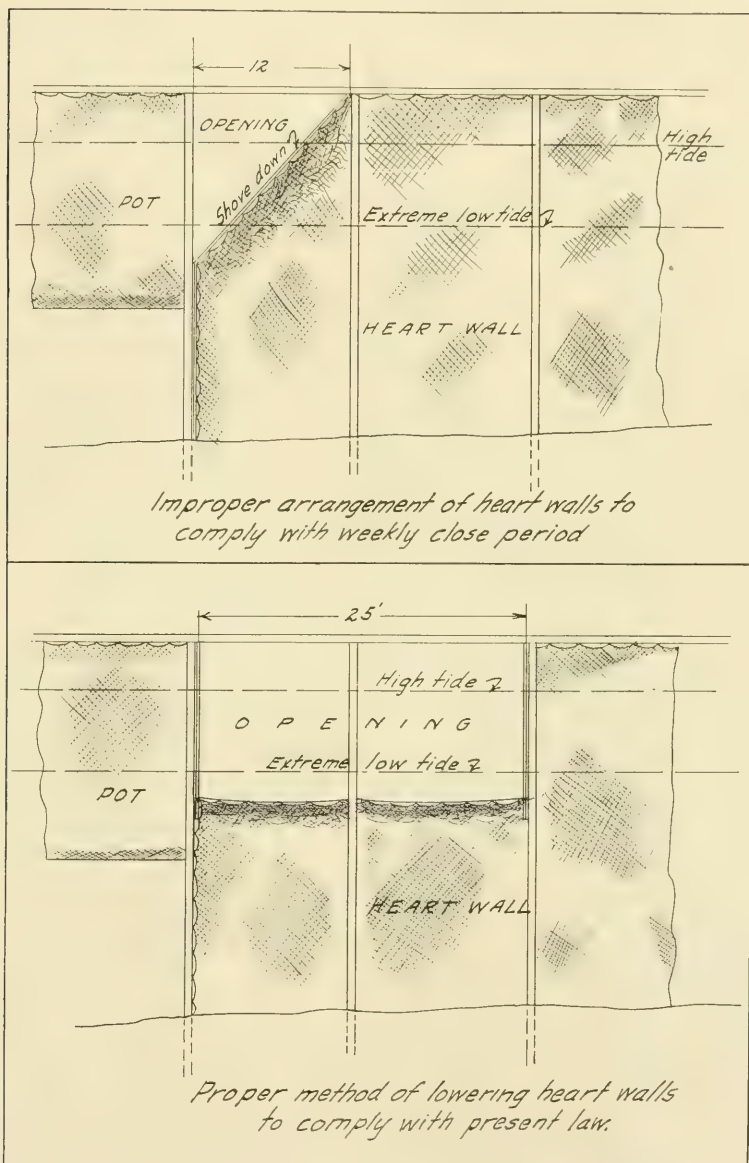
One very important matter that has forcibly impressed me and others is the desirability of requiring that all old piling be removed from an abandoned trap site. This should of course be done by the concern which occupies the site. There are many fishing boats and passenger boats traveling back and forth over these waters each year, and the old trap piles are a menace and should be removed without delay when they are given up for fishing purposes. There is in southeastern Alaska an abandoned trap which had a lead of over three-fourths of a mile and contained about 200 piles. It is not only a menace and danger to navigation, but a nuisance and trouble to the fishermen and their boats.



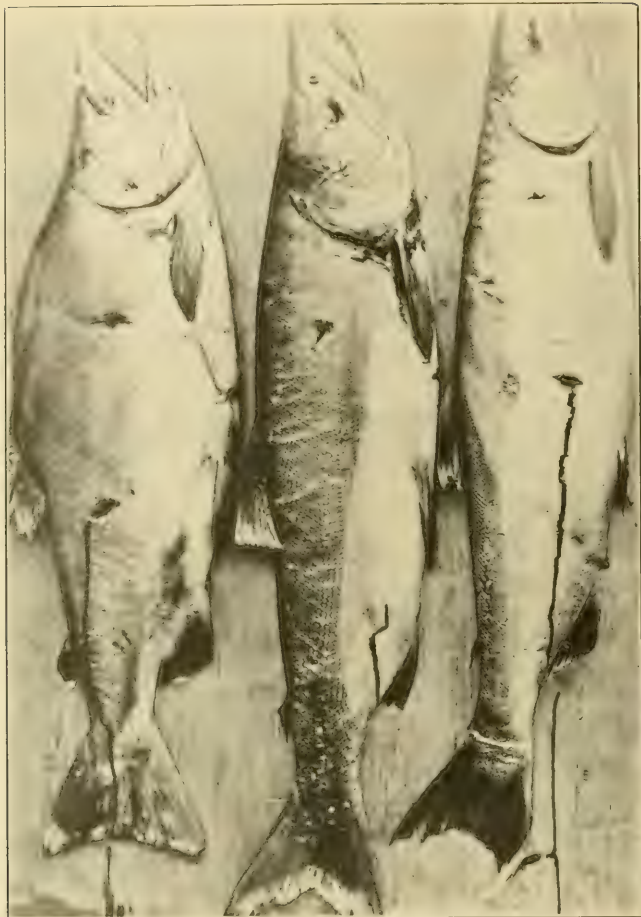
TOWING CANNERY SHIP TO SEA, WESTERN ALASKA.



CANNERY AT YAKUTAT.



Improper and proper methods of arranging heart walls of fish traps in Alaska.



SCARS ON SALMON RESULTING FROM IMPROPER USE OF FISH PEWS.



POWER BOAT FISHING FLEET AT WRANGELL.

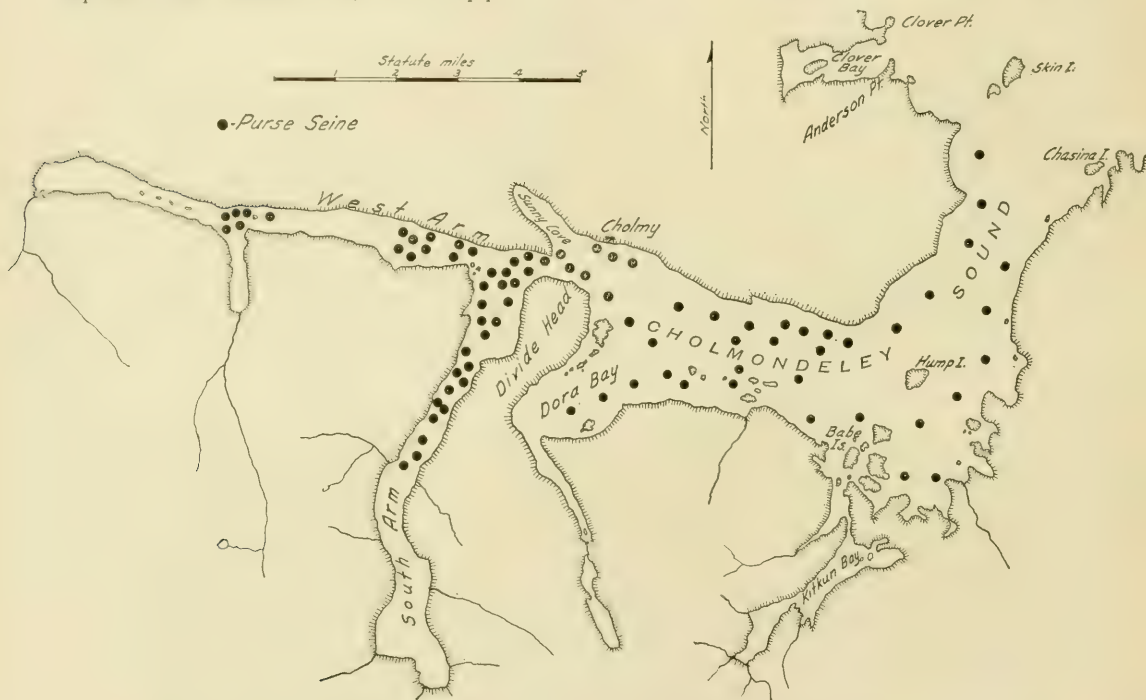


CHILKOOT INDIAN HOOKING OR GAFFING SOCKEYE SALMON ON CHILKOOT RIVER



CHILKOOT INDIANS IN DUGOUT CANOE ENGAGED IN GAFFING OR HOOKING SALMON.

The complaint of some cannery men that hardship will be inflicted by the requirement that 25 feet of the heart walls shall be opened to the passage of fish at low tide as well as high tide does not seem well founded, as a competent and experienced trap man is authority for the statement that it is quite possible to so construct traps that it will not be a particularly great hardship to effect closing in this manner. He said that of course at times when the tide is strong or if there is a considerable sea running there may be some trouble in opening up the full width of 25 feet. He further stated that if the 25-foot feature of the law is enforced literally the practice of constructing heart walls of wire netting must necessarily be modified in that the 25-foot section will have to be constructed of trap web rather than of wire. He stated that haul-downs can be attached on the pile next to the pot and the pile 25 feet away from the pot, whereby the web can be drawn down by means of a hand windlass of the type common in raising and lowering the pots. The web section thus lifted or lowered can be attached at each side by means of rings sliding on a piece of cable stretched taut, or on iron pipe.



Cholmondeley Sound, showing 80 purse seines in operation season of 1914.

Under the circumstances as recited just above, and taking into account the need of imposing additional restrictions upon trap fishing as conducted at present, I am disposed to recommend that hereafter no exception be made in the requirement that the heart walls of all traps operated in Alaska shall be opened for the full width of 25 feet on each side next to the pot, so as to permit the free passage of salmon and other fishes, both at low stages and high stages of the tide.

There has been a tendency in southeast Alaska to use aprons across the mouth of the tunnel for closing purposes. This is a good method if it is honestly applied, but in my judgment it is susceptible of fraud, for it is quite impossible for a Government inspector to determine, except at great expenditure of time, whether the apron extends to the bottom of the trap. This is an important point, since the water is often 50, 60, or even 70 or 80 feet or more in depth at the entrance to the pot, though the pot usually does not extend to the bottom. It is my belief that the law should be made to specify that the mouth of each tunnel shall be closed both by means of an apron and by drawing the tunnel throughout its entire length to one side of the pot. This double precaution will assure a suitable closing.



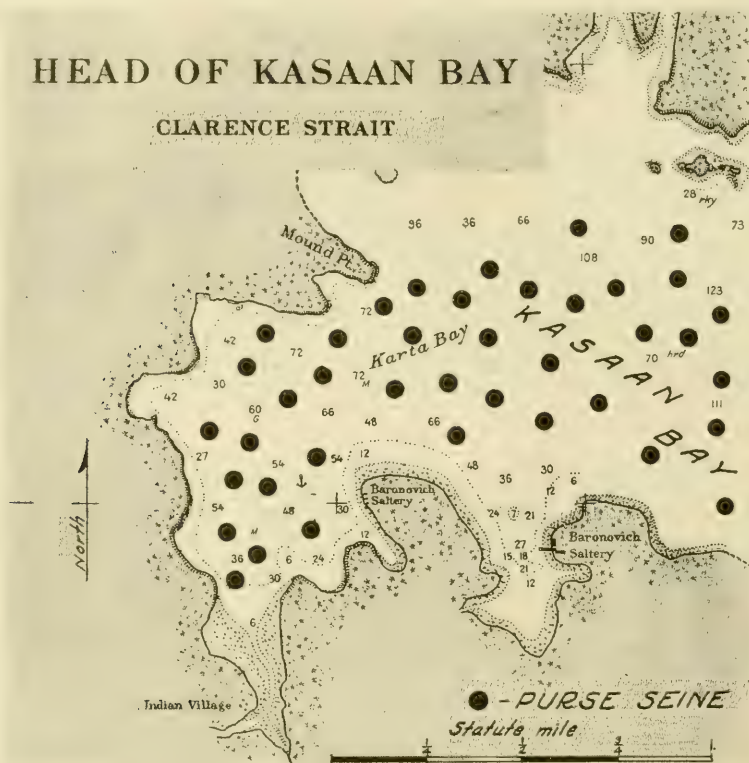
SOME OF THE KODIAK ALEUTS WHO CONSTITUTE THE ENTIRE WORKING FORCE AT ONE CANNERY.



CANNERY ON KODIAK ISLAND, SHOWING NETS DRYING.

PURSE SEINING.

Purse seines are more numerous in Alaska than traps, and their aggregate catch of salmon exceeds that of traps. Purse seines are used chiefly in southeast Alaska, and there are two neighboring districts where this method of fishing is particularly prevalent, namely, Karta Bay and Cholmondeley Sound, off the eastern shore of Prince of Wales Island. By way of example of the heavy and congested nature of purse-seine operations, it may be said that this past fall in the very limited area of these two waters there were about 150 purse seines fishing at one time. The fishermen use purse seines in certain sections of Alaska because no other kind of gear seems to answer the purpose so well. As already indicated, this principle also applies to trap fishing.



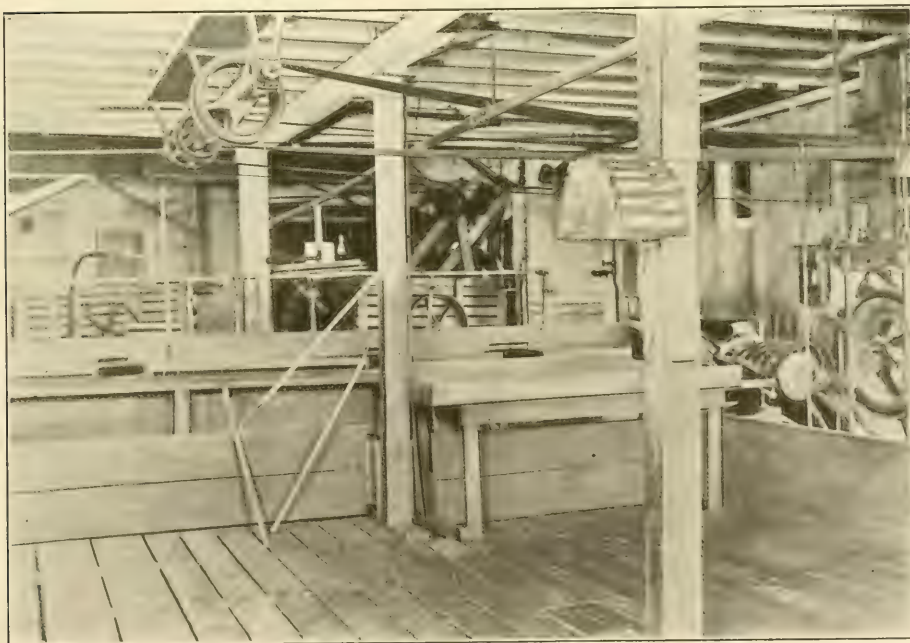
Head of Kasaan Bay, showing 40 purse seines in operation season of 1914.

However, purse seining can not be recommended as a desirable method of fishing, particularly for the reason that it does not rank with the trap as a manner in which fresh and wholesome fish are delivered at the canneries. From much personal observation, there is no doubt in my mind but that a fair portion of the fish brought to the canneries unfit for use have been in this condition on account of the rough treatment they received at the hands of the purse-seine fishermen. Another thing is that a purse seine can be moved wherever the fisherman may wish to take it, thus following the fish into the very stream mouths, a most objectionable practice.

As in the case of traps, the operation of purse seines should be curtailed to some extent. Unfortunately, there are men engaged in the fishing industry who care little for the law, and in order to put a check on them it is necessary to have such legislation as will insure its observance. It is a common occurrence in southeastern Alaska, when salmon are scarce and they have worked their way up to the spawning grounds,



TRANSFERRING SALMON TO CANNERY FROM DOCK WHERE THEY HAVE BEEN DRESSED AND CLEANED.



TABLES FOR WASHING SALMON IN CANNERY.

for canneries to furnish the fishermen with short seines with which to go up stream and take fish from the spawning grounds. With ordinary facilities it is impossible for officers of the Government to detect and stop all such illegal practices in the taking of fish. Therefore, I would suggest that to remedy this situation it would be well to abolish the use of seines under a minimum length of 100 fathoms; and, further, to make the law stronger, it would be well to make even the possession of any such seine in Alaska under 100 fathoms a violation as much as to be actually caught using it. Also, as with regard to traps, no purse seine should be operated closer than half a mile to the mouth of a stream. This is a most important point in the future protection of the salmon.

HAUL OR BEACH SEINING.

With the haul seines the same conditions exist to-day as with the purse seines, and the same remedies are suggested. In addition, with reference to purse and haul seining, I was impressed with the fact that fishermen in some instances do not take the short seines up stream, possibly not having any at hand, but they go up the stream to where the fish are ascending or spawning and drive them back into the deeper water, where other fishermen are waiting with their seines to catch them. This is in direct violation of the spirit of the law, and there should be a heavy penalty in all such cases, even though the men are not actually found taking the fish in seines, or by other means. Every effort should be put forth to prevent the capture of salmon after they have succeeded in reaching waters in which to spawn.

GILL NETTING.

The gill nets really have a small part in the salmon industry so far as southeastern Alaska is concerned, only about 2 per cent of the total catch of salmon being taken in this manner. However, in Bristol Bay, in western Alaska, they are used very extensively. In southeast Alaska gill nets are used chiefly at the mouth of the Stikine River and in Taku Bay. Under the present law, gill nets are required to be 100 yards apart, but on account of the tides which cause these nets to move about, compliance with this law is made quite difficult. However, I feel certain that the fishermen have not done their part in the past, and that they could do more toward complying with the letter of the law by exercising more care and vigilance. It would seem wise to change the present law so that the distance interval between gill nets will be 200 yards instead of 100 yards.

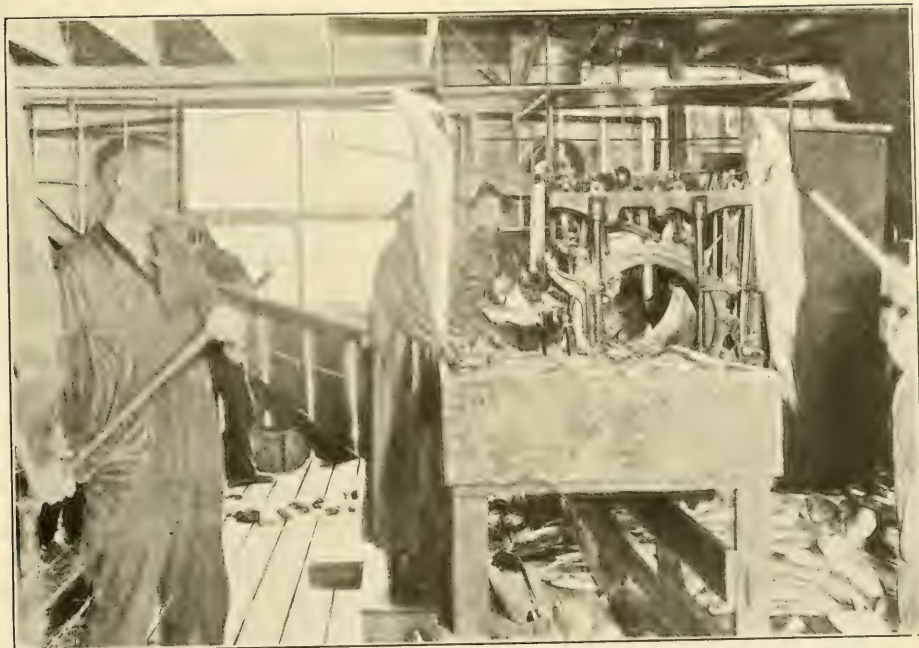
As with the purse and haul seines, gilled fish do not reach their destination at the canneries in as good condition as those furnished by the traps other than perhaps in Bristol Bay, where the fishing grounds are close to the canneries and nets are not in the water for long periods. When a salmon is gilled, it is likely to die soon, and thereafter often remains in the water a number of hours, which causes a certain deterioration. Gilled fish are easy to distinguish by the mark resulting from the net at their gills. A fair number of salmon taken in gill nets are not caught by the gills, but farther back on the body, and they remain alive in the water for hours.

All fishing paraphernalia, such as traps, haul seines, purse seines, and gill nets, should be registered before being put to use. A license system will make this obligatory.

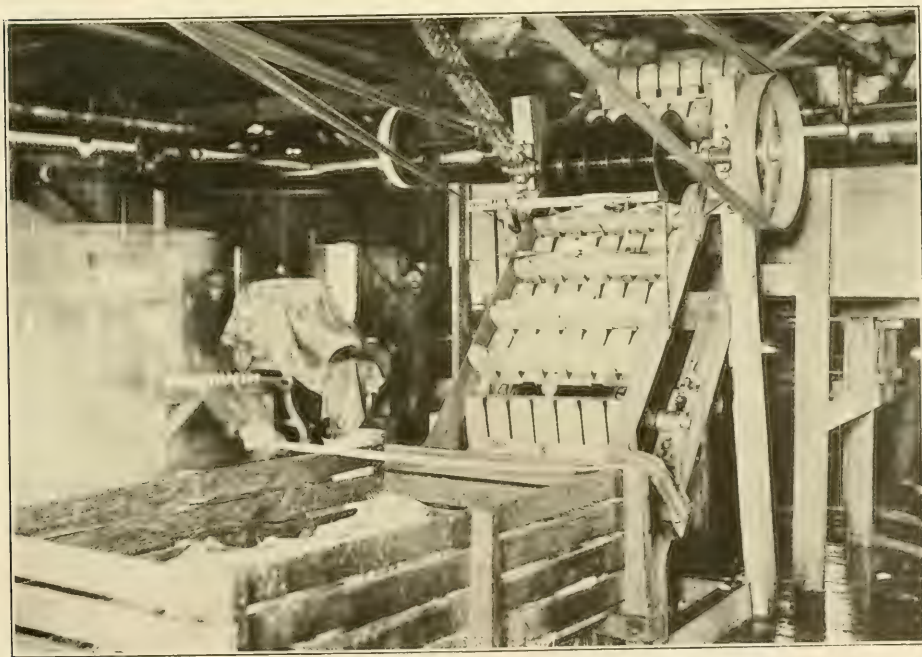
OTHER FISHING METHODS.

Another method of fishing is that practiced by the Chilkat and Chilkoot Indians, of spearing, gaffing, or hooking salmon. It seems unfair to totally deprive these Indians of this ancient method of fishing, for they have certain prior rights that I believe should be recognized, but I think that the practice should be confined to these two tribes and to the Chilkat and Chilkoot Rivers; furthermore, that they should be permitted to continue it only with the understanding that the fish are to be used wholly for domestic purposes and are not to be sold.

Still another rather unique method of fishing is practiced in the Copper River above the delta. When the salmon are running up the stream in localities where the water is very swift, they seek the shores, in order to avoid the current, and are easily picked up by hand dip nets. I experienced the sensation of catching them myself, and it is very easy to land many of them in the course of an hour. It strikes me that when these fish have run by the many gill nets in the Copper River delta, they should be permitted to continue uninterruptedly their journey up to the spawning grounds. However, as there are various little



FEEDING SALMON INTO IRON CHINK WHICH AUTOMATICALLY REMOVES HEADS, FINS, AND VISCERA.



CUTTING MACHINE IN SALMON CANNERY, SHOWING FISH IN ELEVATOR LEADING UP TO REVOLVING KNIVES.

settlements along the shore of the many miles of this river, it might create undue hardship to totally prohibit this method of fishing, and it would therefore seem proper to permit their capture for domestic purposes, but no exportation should be allowed in any form, irrespective of whether fresh, smoked, mild-cured, canned, or otherwise prepared. And, furthermore, there should be no method of fishing allowed in this stream other than by hook and line or by hand dip nets.

MARKERS AT STREAM MOUTHS.

For years there has been controversy in Alaska as to what constitutes the mouth of a river. On account of varying conditions, it is rather difficult to apply any general rule as to where the mouth of a stream begins. A recent court decision specifying that stream mouths in Alaska must be fixed at low-water mark seems to afford a good basis upon which to work. It is evident, however, that some definite action must be taken in the near future in the way of monuments or markers to define and locate exactly the mouth of each stream. This is necessary in order that fishing may be regulated properly. In some instances these monuments at low tide might be a considerable distance from the main channel of the stream. But during flood stages of the tide there are in such cases extended areas of shallow water, and it is perhaps only natural for a fisherman to operate therein when no definite evidence exists as to what is considered to be the mouth of the stream. The solution is to place monuments or markers at low water and thus insure the protection of salmon as they loiter about the stream mouths before ascending to spawn. This should be done jointly by officers of the Bureau of Fisheries and the Coast and Geodetic Survey. There should be heavy penalties for the removal of defacement of such monuments or markers.

CLOSE SEASON DISTRICTS.

That there should be a definite closing date for salmon fishing in Alaska seems necessary, as the end of the season is a trouble maker to the cannery men and a drain on the supply from which the canning interests would no doubt be glad to have relief. The tendency this year, particularly in southeast Alaska, was to continue operations until the very last and take every fish that could possibly be caught in order to fill a few remaining cans. It is well known that toward the end of the season the deterioration of the Pacific salmon incident to the spawning function makes them quite inferior for canning purposes.

After much consideration of this matter, taking into account the opinions of fishermen, cannery men, and other men of experience, it seems proper to stop all salmon fishing in Alaska as follows:

August 20: Juneau district, embracing all the waters north of 57° north latitude, or north of a line approximately through the town of Kake, at the north end of Kupreanof Island, and south of Sitka, on Baranof Island, and east of Cape Spencer.

September 1: Wrangell district, embracing all the waters in southeastern Alaska between 56° north latitude and 57° north latitude, or with a southern boundary line approximately from Yes Bay hatchery westward to Cape Decision.

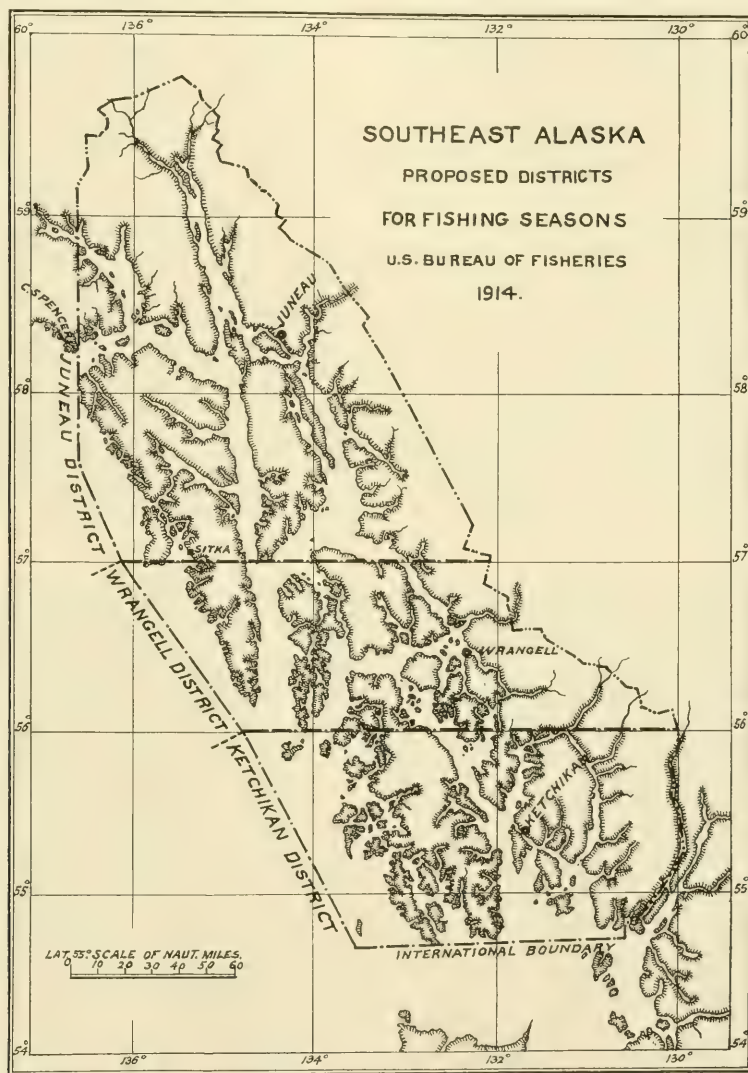
September 10: Ketchikan district, embracing all the waters in southeastern Alaska from 56° north latitude south to the international boundary line at 54' 40" north latitude.

August 10: Stop all salmon fishing in Alaska west of Cape Spencer, except Kodiak Island, where the closing date should be August 25.

It was clearly shown to me a number of times during the past summer that the canneries have operated too late in the season. In a certain section in central Alaska, where three canneries operated in the same vicinity and where there was a scarcity of fish, the canneries cooperated by alternating in canning the day's catch. Even then they had hardly enough to keep moderately busy, and the result was that in an effort to make a full pack many of the salmon they used were spent. Although these fish were fresh from the traps and had been out of the water only a few hours, they were quite inferior for food purposes on account of having spawned. According to admissions of the superintendents, this was a losing proposition and the canneries would really have been better off to have discontinued operations. This condition may be corrected by fixing a definite date when all canning must cease each season.

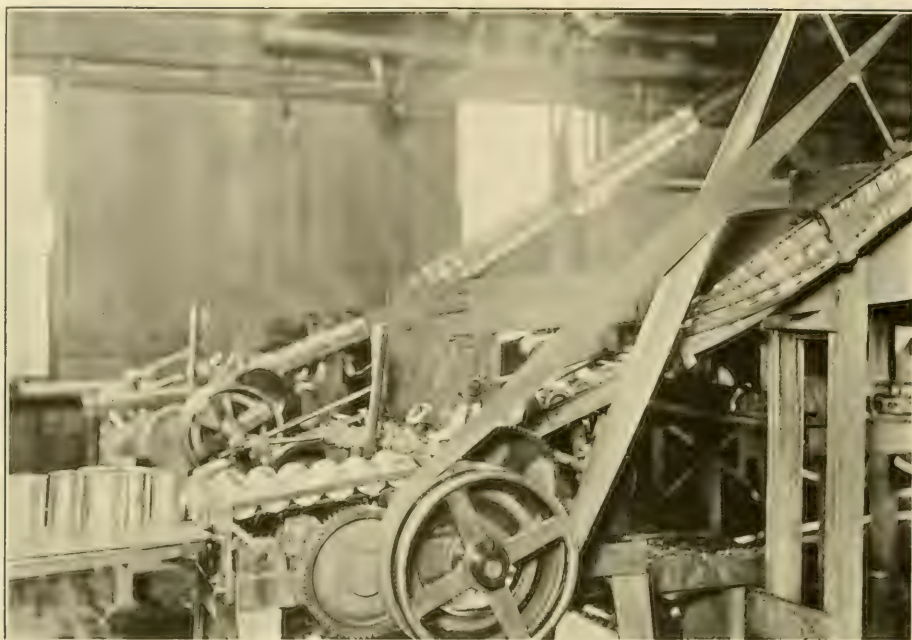
WEEKLY CLOSE SEASON.

An important matter in providing a good escapement of salmon to the spawning grounds is in connection with the lengthening of the weekly close season. It goes without saying that something must be done to safeguard the future of the salmon industry, and it is to the interests of the cannery men and the

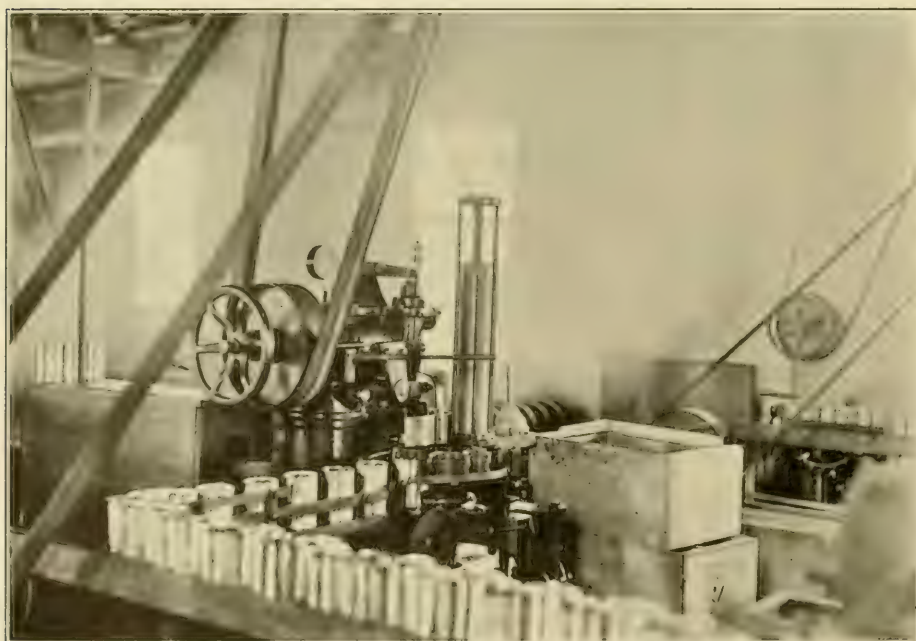


Three proposed fishing districts for southeast Alaska.

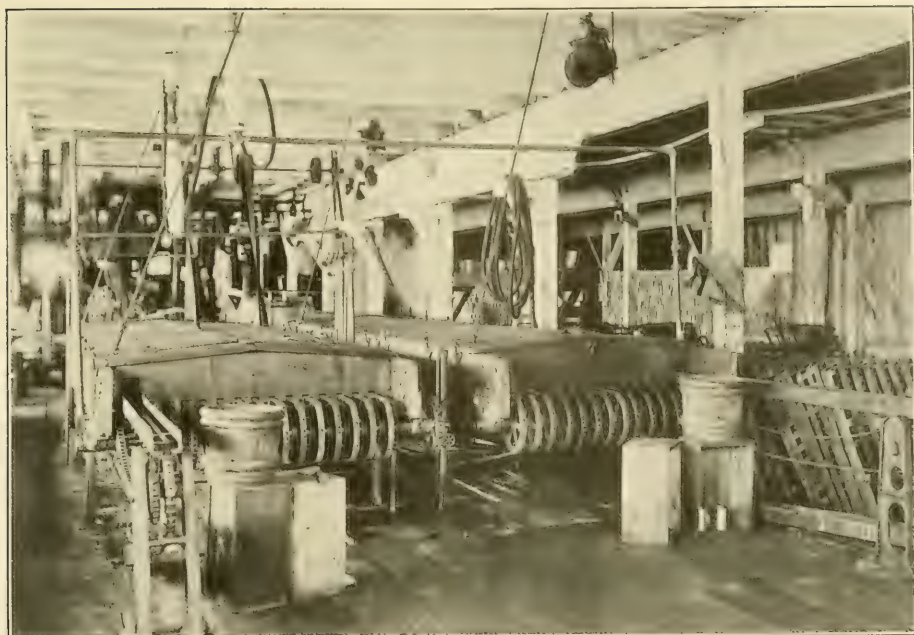
fishermen that these fish should be afforded further protection. Undoubtedly an extension of the present weekly close season will help materially in bringing about this result. The present close season requires that commercial fishing shall cease at 6 o'clock Saturday night, and not begin again until the following Monday morning at 6 o'clock, making a close season of 36 hours. I would recommend the extension of



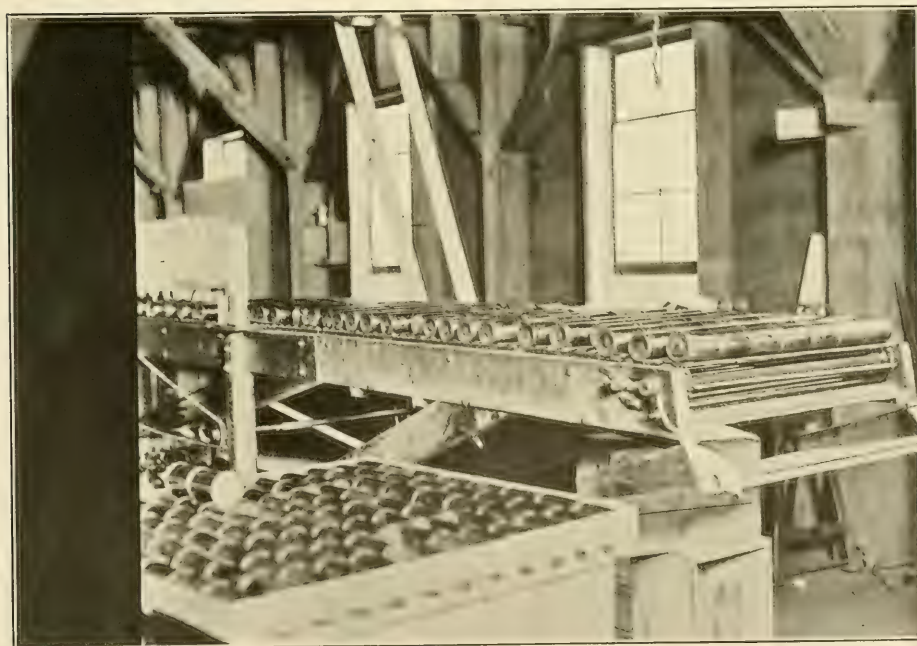
MACHINE WHICH AUTOMATICALLY FILLS SALMON CANS.



AUTOMATIC MACHINE FOR PUTTING TOPS ON CANS FILLED WITH SALMON.



STEAM BOXES IN WHICH THE AIR IS EXHAUSTED FROM CANS BEFORE SEALING.



LACQUERING CANS OF SALMON TO PREVENT RUST.

this from Saturday noon to the following Monday noon. This will make the weekly closing period 12 hours longer and will not only offer a better time of day to the fishermen in which to close and open their traps, but it will better enable the Government officials to see that the law is being observed. The operation of all seines, gill nets, and other fishing appliances should also be included in this extended closing period, as well as trolling for commercial purposes.

WATERS EXEMPTED FROM WEEKLY CLOSING.

When the present law was enacted in 1906, the waters of Bering Sea, Cook Inlet, and the delta of Copper River were exempted from the operation of the weekly closing period. The matter had due consideration at that time, and I see no reason now why any change should be made. The exemption was made in respect to Bering Sea waters for the reason, first, that the fishing season is very short, usually lasting only three or four weeks during the month of July; and, second, that the waters of the region are subject to sudden and violent storms, which make fishing impossible for more or less lengthy periods. It is my opinion that a Sunday closing period for Bering Sea is unnecessary. The pack of salmon at the Bering Sea canneries during the season of 1914 was the heaviest in the history of operations in that region. This would seem to show that in the past these waters have suffered no serious depletion of salmon.

When the present law was framed, the plea for the exemption of Cook Inlet waters from the operation of the Sunday closing period was made upon the grounds that a weekly close period was unnecessary, for the reason that weather conditions are so bad that fishing must cease for as long or longer periods than was considered essential to insure an adequate escape of breeding salmon. I believe that in view of the limitations placed upon fishing in all waters tributary to Cook Inlet as established by the closing order of the Secretary of Commerce of November 18, 1912, no additional restrictions are necessary in the region so far as Sunday closing is concerned.

In reference to the delta of Copper River, it has been averred that the numerous channels and sloughs comprising the delta afford so many avenues of escape for salmon and at the same time make fishing operations so extremely difficult that a Sunday closing period would inflict an unnecessary hardship upon the fishermen and is not necessary in order to have a good escapement of breeding salmon. From my knowledge of conditions at the delta of Copper River, these contentions seem reasonable.

Exceptions ought to be made in the fisheries laws of Alaska in favor of angling for sport or for food for use by the one fishing or his immediate family.

Another method of guarding against overfishing is to restrict the amount of apparatus that may be put into operation. This can be accomplished by a license system and by the power vested in the Secretary of Commerce to discontinue the issuance of permits for various kinds of fishing paraphernalia if it is shown to him that the fishing is being overdone in any particular section.

METHODS OF CANNING.

The various methods employed in canning salmon are naturally of interest and importance to the people who use this popular food, and a high standard of sanitation and cleanliness in connection with its preparation is demanded at all times. This is now generally the case, as practically all steps in the process of canning are performed by highly perfected machines. Upon arrival at the cannery, the fish are passed through the iron chink, a machine that removes their heads, fins, and viscera. The fish are then washed and cut by an automatic cutting machine into lengths suitable for canning. These pieces are then put into the cans by automatic fillers, following which the cans are closed and are ready for cooking in the steam retorts. From the standpoint of sanitation and cleanliness, these automatic processes strongly appeal to everyone.

At some canneries hand packing is still partially in vogue. This process differs from the above in that the fish are put into the cans by hand. More workers are thus required. Gloves are worn by some of the employees who handle the fish, and their use by all persons so engaged should be encouraged.

Turning to another part of the work, I want to speak of the fish pew, or fish fork. These pews are made sometimes with one prong and sometimes with two. They are used exclusively for handling the salmon. I have seen salmon with as many as eight or nine abrasions made by these insanitary pews. There seems to be no regard for the preservation of the flesh or the fact that it is going into cans in a few



CASING CANNED SALMON PREPARATORY TO SHIPMENT.



LOADING CASES OF SALMON TO BE PLACED ABOARD SAILING VESSEL FOR TRANSPORTATION TO THE STATES.

hours. I opened a number of cans of salmon ready for the market and found brown, discolored meat, the direct result of a stab from a fish pew. Unless the cannery people feel the necessity for stopping this practice, it would seem wise to pass a law prohibiting the use of fish pews on any part of the salmon except the head. At some canneries this is now being done, but in many instances the matter receives only indifferent consideration.

There is another matter regarding sanitary conditions that should receive more consideration from the owners and managers of some of the canneries, and that is the condition of the outbuildings and surroundings. The quarters in which the employees sleep and eat are in some places quite filthy and even worse than many city tenement houses. These employees who handle in various ways the food that is being prepared for general consumption should have comfortable and healthful quarters and surroundings provided for them. Matters of this character should come under the supervision of the Government officials just as much as the inspection of the interior of the canneries.

While some canneries unfortunately do not lay great stress on the need for perfect cleanliness and sanitation, there are many that are regarding this with the seriousness it deserves; therefore, to encourage and protect those who give proper attention to such matters, the Government should be willing to cooperate with them by approving the goods they manufacture.

GOVERNMENT INSPECTION OF CANNERY PRODUCT.

The question of Government inspection of the product of every cannery in Alaska is a splendid scheme in theory and is strongly indorsed by most of the cannery men and the people at large; but looked at from a practical standpoint the plan does not seem feasible. There are 80 canneries in Alaska which are in operation from two to five months each year, and no competent man, experienced in cannery work, would give his time or engage himself in such inspection work unless afforded employment throughout the year. Unskilled, impractical men would only create disorder and misunderstanding. The suggestion that these men be paid by the canneries is out of the question, for the Government should furnish such services to make them of any value. Therefore, while it seems highly desirable that closer inspection be made of the canneries and their product by Government officials, it appears impracticable on account of the short season and lack of funds to supply such inspectors. With a proper patrol service and a more adequate force of men to undertake this work, the inspection of all canneries could, to a large extent, be accomplished. The suggested patrol service will be further taken up under another head.

The question of handling partly spoiled fish is an important one. The law to-day forbids the canning of salmon which have been dead for more than 48 hours. This is wrong from two standpoints. It is an undeniable fact that many salmon which have been dead not over 24 hours, because of the method in which they are caught, the way handled, and the weather conditions, are not fit to go into cans. On the other hand, I saw fish that were to my knowledge 60 hours old which were perfectly good and could properly have been canned so far as their condition was concerned. Still, under the existing law, it was necessary that these fish be thrown away.

I observed in canneries no less than a dozen instances where from 500 to 5,000 salmon were absolutely unfit for canning; yet, when I remonstrated with the superintendents, they proved that some of these fish were not over 48 hours old. Therefore they were technically complying with the fisheries law. Some of these fish had, of course, deteriorated more than others. Still, superintendents, knowing these conditions, have allowed such fish to be put up for food. It goes without saying that all such salmon, canned or uncanned, were thrown overboard without delay.

The question may be asked, How do you account for this variation in the condition of fish at the same time of the year and in the same locality? My explanation is this: As previously indicated, the haul and purse seines and gill nets do not usually deliver their fish in as good condition as the traps, and owing to the fact that the fish are roughly handled in many instances they often reach the cannery bruised, torn, and in a deteriorated condition. On the other hand, the trap fish are taken out of the trap alive, in a comparatively easy manner, are dropped into the scows, and lie there in the moisture, which is almost equal to hermetical sealing; and these fish keep for hours in this state without the slightest deterioration. Furthermore, trap fish are almost always delivered at the canneries more promptly than fish taken by other forms of gear. I would therefore recommend that in place of the 48-hour provision there be one



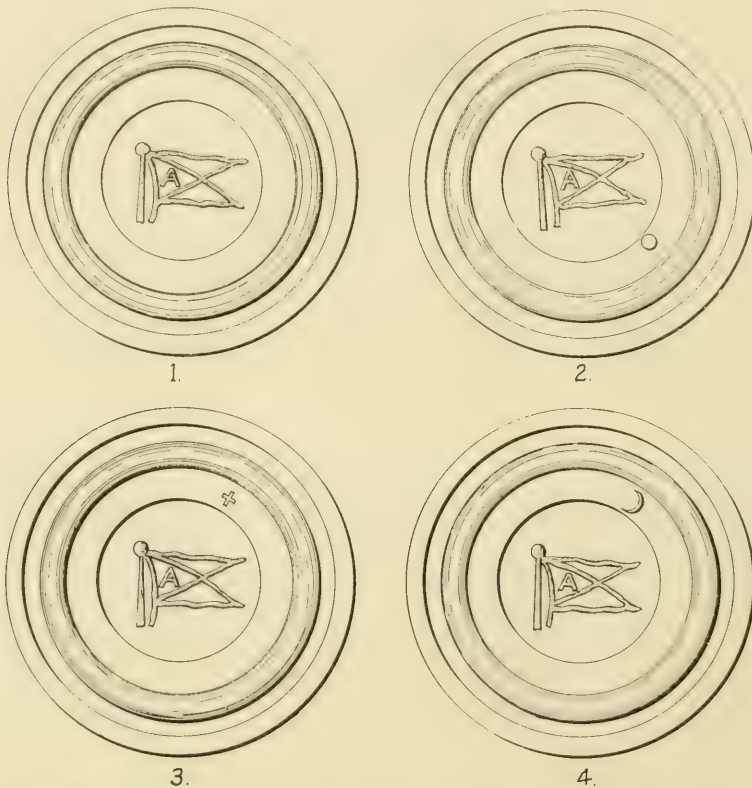
SALMON IN A CONDITION DESIRABLE FOR FOOD OR COMMERCIAL USE.



SALMON IN A CONDITION UNDESIRABLE FOR FOOD OR COMMERCIAL USE.

substituted to read that salmon not over 60 hours out of the water may be canned; but regardless of how short a time they have been out of the water, if in any way unfit for food they shall not be utilized. Such a provision would prevent the utilization of salmon that have passed their usefulness as a food on account of having spawned, although fresh from the water; and those that have been improperly handled and cared for.

In connection with the canning of salmon it seems to me most important that every concern in Alaska should have a distinctive mark on all its cans, so that responsibility may rest on the packers and not on the jobbers. The cannery men really desire this, for most of them are proud of their product



Embossed can tops, showing scheme of one company for designating different species of salmon.
(1) Red or sockeye; (2) humpback or pink; (3) coho or silver; and (4) dog or chum.

and they want the credit for its manufacture. Not only should every can be marked distinctly with the name or initials of the company packing it, but it should also clearly indicate what kind of salmon it contains. The Alaska Packers Association has the clearest and most distinctive mark to-day, and the plan should be followed out by other concerns. These trade-marks should all be registered.

DO-OVERS.

Do-overs, or cans that have been cooked and reprocessed, should not be handled for food purposes, for they are usually unfit for human consumption. Since there are a considerable number of these, they might be utilized at hatcheries as food for fry, or possibly as food on fox ranches. It would really be better, however, if all do-overs were destroyed at the canneries. This is now being done in a number of instances.



TROLLING AND GILL NETTING FOR KING SALMON AT MOUTH OF STIKINE RIVER.



SALMON UNFIT FOR CANNING.

MILD CURING.

Mild curing is a very desirable and popular way of handling the salmon and makes of it a most palatable food. The process consists of lightly salting the fish and keeping them at a low temperature until ready for the consumer or for smoking, as is often the method of treatment before they are finally marketed. The mild-curing business has reached considerable proportions and the popularity of the product has extended over two continents. The industry is confined to the utilization of king salmon and, to a small extent, to cohos.

In Alaska during the past season there was trouble between the mild curers and the fishermen. It reached such proportions in May and June that it threatened to demoralize the entire business. The fishermen charged the mild-curing establishments with refusal to accept a large part of their catch. On the other hand, the mild curers warned the fishermen in many instances that they could not use over three red-meated kings per boat per day, and that if they brought in more they would not be received. This created discontent and disorder, which resulted in the waste of many thousands of king salmon, both red and white meated. In some cases it was proved conclusively that after fishermen had brought their catch to the dock they were offered 30 cents for the red kings under 20 pounds, \$1 for reds over 20 pounds, and nothing for the white king salmon. To some extent, however, matters were adjusted temporarily and work continued. Of course, this situation must not occur another year.

There is something to be said on both sides of the controversy. Irrespective of whether the fish caught are of large or small size, the fishermen must not catch more than the total number they are instructed to bring in for each day's catch, and on the other hand the fishermen must be assured that all fish brought in to make up this daily quota will be accepted. The success of a fisherman's efforts thus becomes a matter of chance, for his profits will be in proportion as he catches large fish.

One of the things that caused great dissatisfaction during the season was the fact that many of the fishermen were instructed to bring in only three red kings a day. If all were small, it might mean only 90 cents for a whole day's work. This would encourage them to throw away all small fish as fast as caught, in anticipation of taking three larger ones that would bring \$1 apiece. On the other hand, the buyers of king salmon must and should take care of both red and white king salmon, of all sizes, brought to them on contract; and if they are not willing to do this and to thus utilize the small red-meated fish, and all the whites, they should not be allowed to operate.

As a matter of information, it may be well to give an idea of the sizes of sides obtained from some of the fish used in mild curing. For example, a 25-pound salmon will make two 8-pound sides, and an 18-pound salmon will make two 6-pound sides. Sides under 6 pounds are not profitable in mild curing and, it is said, will not stand smoking.

The question of cold-storage operations applies here, and while it is understood that king salmon under 18 or 20 pounds do not produce sides that can be profitably mild cured there is no sufficient reason why red kings under that weight, and all white kings, should not be accepted for freezing purposes. It is imperative that none of these valuable fish shall be wasted either by the fishermen or mild curers.

POWER-BOAT TROLLING.

Power-boat trolling is a new feature, comparatively speaking, in Alaska waters. It is confined chiefly to the capture of king salmon during the spring and early summer. There is no question but that these boats have worked great harm and have been injurious to the fishermen's interests, as many of them now realize. On account of the speed of the boats, the fishermen necessarily troll with lines high in the water, and for this reason a large percentage of the catch consists of small fish. The larger fish are found at lower depths. The large proportion of small fish was the cause of the unfortunate controversy between the mild-cure buyers and the fishermen this year. Another unfortunate feature is that the fishermen on power boats lose many of the fish which are hooked and which afterwards die. This applies especially to the large fish. It is impossible to play them as from a rowboat, and this playing is sometimes very necessary in order to save these gamy fish.

There were about 200 power boats on the west coast of Prince of Wales Island and vicinity during the early part of last June. While some fishermen use these boats only as a means of transportation, fishing from their dories when they arrive on the fishing grounds, almost all of them fish directly from the power boats on account of the saving in manual labor. The result is that they are injuring and permanently



GILL-NET OPERATIONS AT MOUTH OF TAKU RIVER. HAULING IN A COHO SALMON.



POWER BOAT USED FOR KING-SALMON TROLLING, SHOWING TWO OUT-RIGGERS TO WHICH LINES ARE ATTACHED. OTHER LINES ARE HANDLED FROM STERN OF BOAT.



METHOD OF DRESSING KING SALMON FOR MILD CURING.

ruining their business. Hand trollers can fish deeper, they get larger fish, they lose fewer fish, and the results have proved far less injurious than the new method of power-boat trolling. I would strongly advocate the prohibition of power-boat trolling in Alaska waters.

SALMON SALTERIES.

The salting of salmon in Alaska is now confined chiefly to the Bering Sea region, where the red or sockeye salmon is available for this purpose. In southeast Alaska the industry has declined very perceptibly in recent years, chiefly because of the fact that in this section most of the salmon salted have been



Sketch of waters that should be closed to commercial fishing.

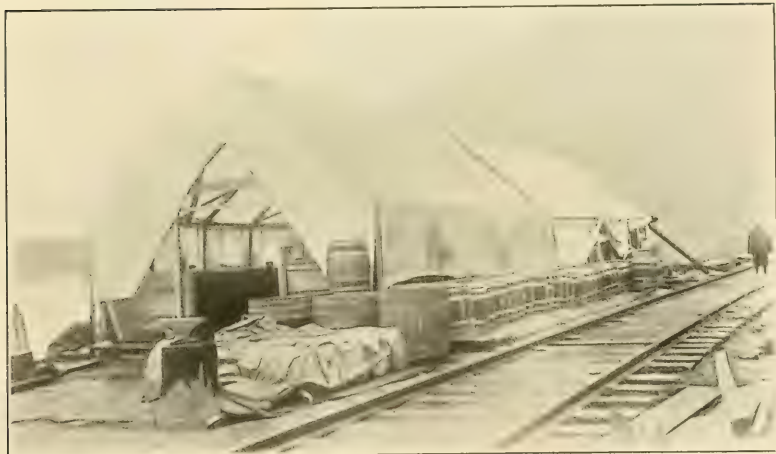
pinks, the market for which in the last few years has not been strong. Moreover, the mild-cure field has been much more profitable and attractive to most of those formerly engaged in salting operations. In southeast Alaska red salmon are less abundant and are therefore considered to be more valuable for canning than for salting.

CLOSING STREAMS TO COMMERCIAL FISHING.

Owing to the ever increasing demand on nearly all waters of Alaska for almost their entire supply of salmon, it seems absolutely necessary in the interests of the future of the fishery to make further closures of streams to all commercial fishing. A number of waters have already been so closed by order of the Secretary of Commerce, and it is recommended that six other waters be similarly closed, as enumerated below:



DIP-NET FISHING FOR SOCKEYE AND KING SALMON
ON COPPER RIVER, AT MILE 55.

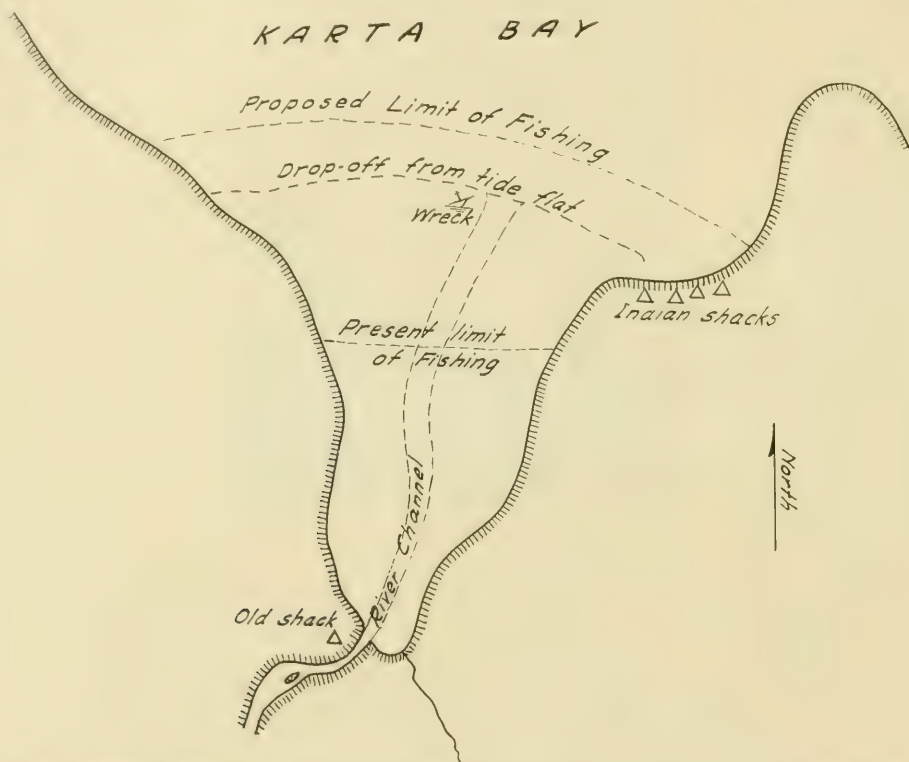


SALTERY ON COPPER RIVER.

First. The present fishing at the mouth and delta of Copper River is all the stream ought to stand, and to insure a certain number of salmon reaching their spawning grounds it is advisable to close this stream above the delta to all kinds of fishing, except for domestic purposes, and allow no fish to be shipped out in any shape or form.

Second. The Ankow River near Yakutat should be protected against all commercial fishing. This might result in some hardship for the Indians who rely on this stream for their winter supply of fish, but such fishing might be allowed with perfect propriety if done under certain restrictions and without any of the catch being utilized for commercial purposes.

Third. At Lake Bay the waters above the entrance to Barnes Lake should be closed to all commercial fishing. These waters embrace Gold and Galligan Lagoons, Sweet Lake, Lyman Creek, and Lester River.



Further restrictions proposed for fishing off mouth of salmon stream at Karta Bay. This is typical of other Alaska streams.

Lyman Creek is a sockeye stream and Lester River is a silver and humpback salmon stream. They are worthy of every protection that can be afforded them.

Fourth. In Whale Passage Lagoon, at Thorne Island, near Lake Bay, there should be no commercial fishing. At the present time two traps are located there, and to a great extent they prevent many of the fish from ascending to the spawning grounds.

Fifth. Mink Arm, one of the tributaries of Boca de Quadra, should be closed to all fishing. Under present conditions this water seems highly valuable for salmon breeding and for hatchery work.

Sixth. Hetta River and Lagoon and Klawak Inlet, both on the west coast of Prince of Wales Island, should be closed, to afford better protection to the hatcheries drawing their supply of brood salmon from these waters.

If Congress passes a law prohibiting all fishing within half a mile of stream mouths, as suggested in this report, it may not be necessary to have special closing orders for all of the waters named above.



SEPARATING SALMON FROM OTHER EDIBLE FISH NOT UTILIZED



BOTTOM OF SCOW FROM WHICH SALMON HAVE BEEN REMOVED, SHOWING
EDIBLE FISH NOT UTILIZED.



NATURAL BARRIER AT SILVER SALMON FALLS, LESTER RIVER. NOTE MASS OF SALMON IN FOREGROUND.



NATURAL BARRIER IN KETCHIKAN CREEK.



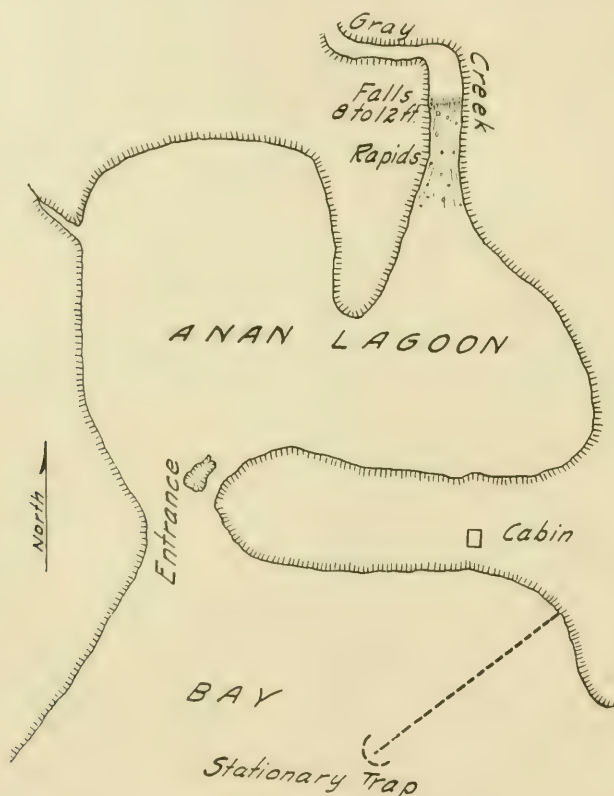
STEP FALLS, HOFSTAD CREEK, A NATURAL BARRIER TO ASCENT OF SALMON.



ENORMOUS TREES FORMING LOG JAM HALF A MILE LONG IN LESTER RIVER.

OBSTRUCTIONS IN STREAMS.

While the overfishing in Alaska waters, which has had much to do with the waning supply in some sections, necessitates an imperative curtailment in the methods and extent of fishing operations, there are other ways of benefiting the future supply, the responsibility for which rests entirely with the Government. In many good streams in Alaska there are obstructions which, to a great extent, prevent the salmon from ascending to their spawning grounds. These obstructions are either of the nature of natural falls or of barriers formed by jams of wind-fallen trees. Some of the falls are so high that it is impossible for the salmon to ascend in any season. There are others of lesser height which at certain stages of the water may be ascended by the salmon, but with more or less difficulty. I personally investigated a number of streams in which obstacles to the ascent of salmon exist, and while not everything along this line can



Trap too close to mouth of stream and falls that should be blown out.

be done at once there are six streams where I recommend that early action be taken to correct the existing conditions. These streams are as follows:

Ketchikan Creek.—This creek, which has always been famous as a humpback stream, has three obstructions to-day. There are two falls of 18 feet and 25 feet each in height, and a long, high, log jam which is increasing in size each year, and very few salmon can get over or under it. The partial removal of this log jam would cost very little. The removal of the two falls is impracticable, but fish ladders could be erected at a cost of about \$1,500.

Gray Creek.—This creek, the outlet of which is Anan Lagoon, is a splendid humpback stream, yet many of the fish I saw dead this year had fought the rapids and falls so long that they fell back to be



LOOKING DOWN MILL CREEK FALLS TOWARD EASTERN
PASSAGE.



GRAY CREEK, SHOWING SALMON WHICH HAVE DIED
BEFORE SPAWNING, HAVING BEEN UNABLE TO ASCEND
FALLS. THOUSANDS OF SALMON ARE THUS LOST.



SALMON LEAPING FALLS.



JAM IN KETCHIKAN CREEK WHICH PREVENTS ASCENT OF SPAWNING SALMON.



SOCKEYE FALLS, LYMAN CREEK. A BARRIER TO THE ASCENT OF SALMON.

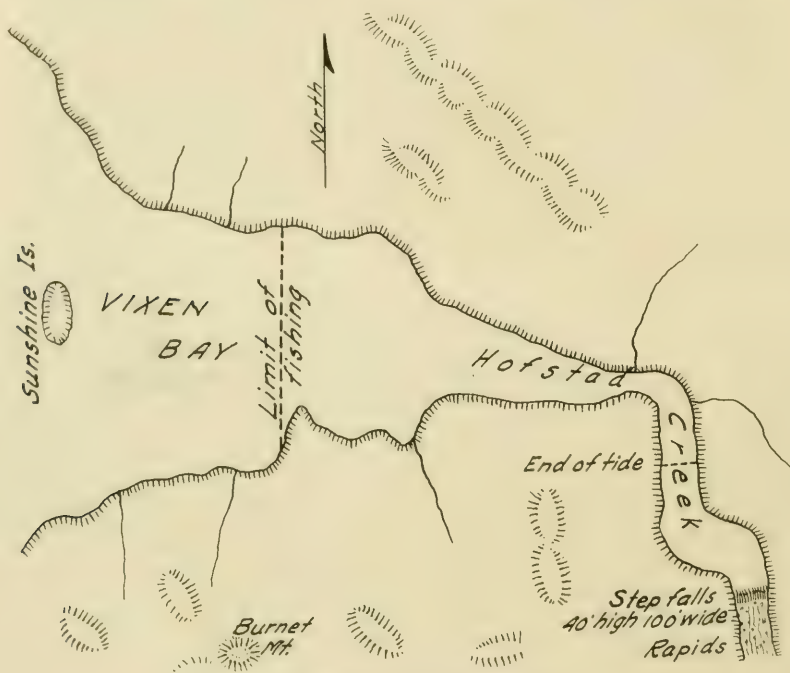


OBSTRUCTION IN KETCHIKAN CREEK.

killed by various enemies. For about \$250 a portion of these steep falls could be blown out, which would assure the fish ascending the stream to natural spawning grounds.

Mill Creek.—In this creek, which empties into Eastern Passage opposite the north end of Wrangell Island, there is great opportunity for a similar work. The fish congregate in multitudes at the foot of these rapids every year. If the water happens to be low, none can get up, and they fall an easy prey to the seines. With an expenditure of about \$250 these falls could be lowered in such a way as to insure the ascent of humpbacks and sockeyes to waters where the conditions can not be improved upon for breeding grounds. This creek is the outlet of Virginia Lake, and its headwaters are ideal spawning grounds for sockeye salmon.

Hofstad Creek.—This creek empties into Vixen Bay, and I found many humpbacks and chums present. At a point one mile from its mouth are step falls that present an obstruction to many salmon that start to ascend the stream, which extends a number of miles above. Blowing out these falls with dynamite is impracticable, but a fish ladder could no doubt be erected here at a cost of about \$800.



Falls in Hofstad Creek where fishway is needed.

Sweet Lake tributaries.—This lake lies on the north side of Prince of Wales Island, and the two upper tributaries are Lyman Creek and Lester River, the first a sockeye stream and the second a humpback and silver salmon stream. On each of these streams, 4 miles from their mouths, there are almost impassable falls known as Sockeye Salmon and Silver Salmon Falls, which could be removed at a cost of about \$250 each. In the early part of September, 1914, I stood at Silver Salmon Falls and watched the salmon try to ascend at the rate of about 50 a minute, but very few of them ever worked up the stream, as was clearly shown by observation below the falls and along the still waters, where hundreds of these fish lay dead, bruised, and cut from their efforts. The investment of a few thousand dollars on all of these streams would mean a great return in the future, as the result of opening up additional natural spawning grounds as yet almost wholly untouched.



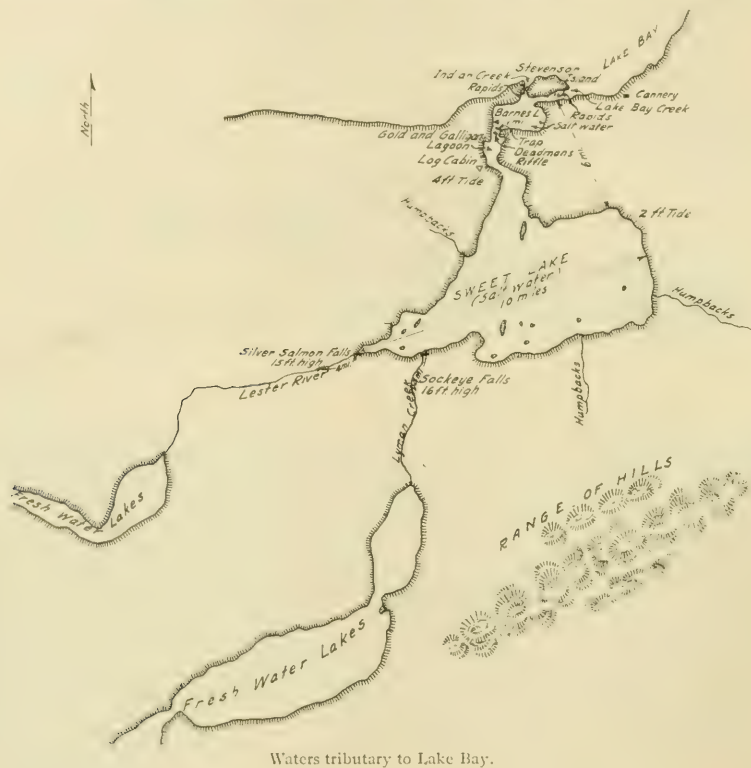
SILVER SALMON FALLS, LESTER RIVER. NOTE NUMBERS OF SALMON TRYING TO ASCEND



MILL CREEK FALLS, A NATURAL BARRIER TO THE ASCENT OF MANY SALMON.

NATURAL ENEMIES OF SALMON.

It is necessary to study carefully all agencies, both natural and otherwise, tending to deplete the supply of salmon and other food fishes in the waters of Alaska, and to apply as far as possible proper remedial measures. Those engaged in the great fishing industry say the blame for the diminished numbers of salmon is due largely to natural enemies, which include bears, wolves, eagles, gulls, terns, mergansers, hair seals, trout, and sculpins. These enemies undoubtedly destroy enormous numbers of salmon and their eggs. But this condition has gone on for years, and would continue without serious detriment to the supply if it were not for the added drain resulting from heavy fishing now carried on in Alaska waters. It is evident from close observation that man has had much to do with the waning supply of salmon now apparent in some sections. Of course, this great natural resource was made for man's use, and we must



Waters tributary to Lake Bay.

recognize, in every way possible, the fact that he has first claim and that the fish are there to be taken, but *properly* and *with discretion*, so that the future supply will not be jeopardized. Under the present head, however, it is the purpose to discuss chiefly the more important natural enemies of the salmon.

Bears.—We will consider first the bears, which do their greatest damage during the spawning season. When the salmon are up in shallow streams seeking suitable places to deposit their eggs, these animals haunt the shores, and with their huge paws slap the fish out of the water, first often playing with them, and later perhaps eating a portion of them. This condition is worse in some sections of Alaska than in others, due partly to a lack of other foods and partly to the condition of the waters. Also, bears are much more plentiful in some parts of Alaska than in others. I should like to cite a few instances of actual conditions as I saw them, concerning the destruction of salmon where they had not yet spawned.

At Union Bay, Cleveland Peninsula, I spent over a day in and around the region of Black Bear Creek. I walked the middle of the stream, also examining both banks for as much as 3 miles. I found the greater



BROWN BEAR, ONE OF THE NATURAL ENEMIES OF SALMON, WEIGHT 1,200 POUNDS.



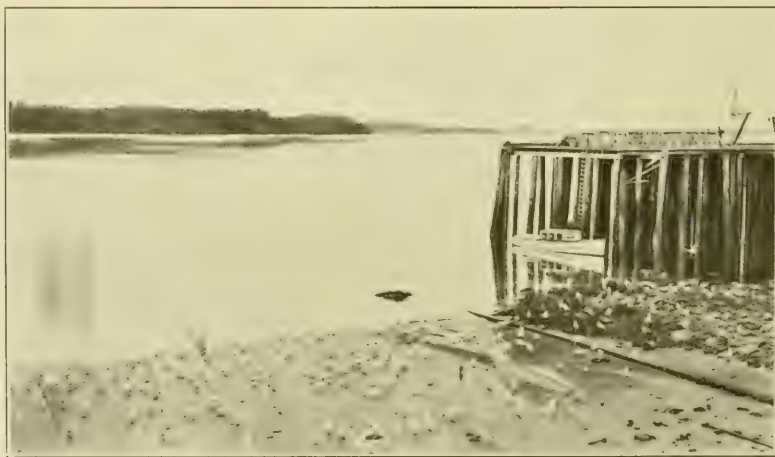
GULLS FEEDING ON HERRING SPAWN NEAR SITKA.



AMERICAN MERGANSERS, NATURAL ENEMIES OF SALMON.



AN EAGLE, NATURAL ENEMY OF SALMON AND YOUNG DEER.



GULLS EATING CANNERY WASTE.



A HAIR SEAL AND KING SALMON THAT IT HAS MUTILATED, NEAR WRANGELL.



GULLS WAITING TO FEAST ON SALMON AND THEIR EGGS.

part of the shore, sometimes for 100 to 150 feet back from the stream, trodden like a pasture in well-defined paths that looked as if made by cattle. Over all this area, frequented by bears during the salmon runs, I saw hundreds upon hundreds of humpbacks, silvers, and chums that had been thrown out of the water by these animals. In the majority of cases the fish were not mutilated, only bruised by the mark of the bear's paw on their backs, showing their characteristic way of tossing the fish out of water. The bear is very fastidious and prefers the cheek of the salmon to any other part. In most cases the remaining portion of each fish is left untouched. One can readily realize that a large, healthy bear would require a great many salmon cheeks to satisfy his ravenous appetite. The stench along this stream was most unpleasant, and besides the fish in varying stages of decomposition there were many bones that gave indication of the large number of salmon destroyed annually by the bears.

I found a similar condition on Prince of Wales Island below Silver Salmon Falls, where thousands of fish, unable to ascend this natural barrier, had fallen back tired and worn out, only to be cast ashore by bears. If the bear would take out of the water only what he actually eats, this condition would not be nearly so bad; but the destruction of so many fish from pure maliciousness, or playfulness, makes it a serious matter.

The foregoing examples of Union Bay and Prince of Wales Island are merely typical of many other places where black bears are very plentiful and the destruction of salmon is correspondingly heavy. On Admiralty and Baranof Islands, where the brown and grizzly bears are more common, these conditions are just as bad as on other streams in southeastern Alaska which empty into arms of the sea.

And not alone in this section of the country are the salmon interests affected by the depredations of bears, for in many localities in the central and western regions the same effects at certain seasons of the year are observed. On Kodiak Island, where the largest bears in the world are found, they frequent the streams and spawning grounds of the sockeye and the humpback salmons. A native told me that one of these animals can eat, in a single day, a third of its own weight. This may be somewhat exaggerated, but when one realizes that an adult specimen of this bear weighs about three-fourths of a ton he can appreciate the number of salmon needed for its subsistence. As in other parts of the Territory, this bear also throws considerable numbers of fish out of the water, many of which it may never care to touch for food.

Wolves.—Wolves play a part similar to the bears in the destruction of salmon, but to a less extent, owing to the fact that they prefer to hunt game, especially deer.

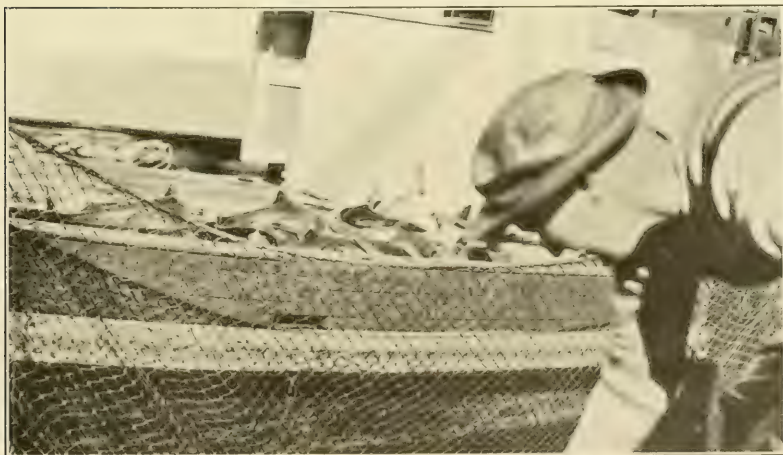
Eagles.—In southeast Alaska, particularly, the eagle is a contributing cause in the destruction of salmon during the spawning season. I noted, on one cluster of rocks on Admiralty Island, between 40 and 50 of these birds that had been satisfying their appetites on salmon in a stream close by. Below Silver Salmon Falls, and on Hofstad Creek, and again on Black Bear Creek, I observed hundreds of them, early in the morning and in the evening, ravenously eating salmon that had been making an effort to reach their goal. British Columbia has a bounty on these destructive birds, and I think that it would be the means of saving many salmon and their spawn if the United States Government placed a similar bounty on them in Alaska.

There is another feature worthy of consideration, showing the depredations of the eagle. It hardly comes under the jurisdiction of the Bureau of Fisheries, still it is in line with conservation and protection. I not only observed, but have heard from various reliable sources, that eagles kill many fawns. I saw where a number of eagles had destroyed two fawns, and I have no doubt that many hundreds of them are killed every season.

Gulls and terns.—Of the birds, probably the most destructive to fish life are the gulls and terns. It is difficult to state adequately the amount of damage they do and the menace they are to the future supply of salmon. To make this clearer, I will cite one experience I had in western Alaska at Sierra Creek. I inspected this stream on a rainy day at low tide, and as I approached it at the mouth my attention was attracted by a movement of birds in the water and along the banks. As I drew nearer, I saw thousands of salmon fighting their way up the shallow stream, and among these fish were the gulls, picking out first one eye and then the other. I flushed this enormous horde of gulls, which I believe numbered at least 10,000. Going closer to the stream I found humpback salmon flopping everywhere, with their eyes gone and otherwise mutilated from the picking and clawing of these birds. I estimated that on this creek alone there were within sight 5,000 fish, either dead or dying, that had never spawned. In southeastern Alaska, in Anan Lagoon, which is supplied by Gray Creek, I noted a similar condition, and picked up many salmon



TWO HAIR SEALS TAKEN FROM A FISH TRAP WHERE THEY HAD MUTILATED
SEVERAL HUNDRED SALMON.



REMOVING SHARKS FROM TRAP

that had been unable to get farther up the stream, on account of a natural obstruction, and were thus killed by gulls and other enemies before spawning. I could enumerate many other instances which would merely confirm the results of these observations.

There are other fish that suffer equally as much from the gulls. On the western coast, near Sitka, and in other regions, earlier in the season their prey is principally the herring and their eggs. Many millions are sacrificed in this way. It is beyond comprehension that this vast number of birds, so injurious to a great industry and so destructive to much valuable food, should be protected by law. Their only redeeming feature, as far as I can see, is that they act as scavengers for the cannery people who are willing to dump refuse almost into their front yards to be eaten up by these ravenous birds. However, I think this is a poor argument in their favor, for the cannery men should improve conditions by taking care of this waste material rather than depend on the present means for disposing of it.

In some localities, and especially on Forrester Island, the Indians have been collecting gull eggs for food. Since Forrester Island was made a bird reservation, this has been prohibited, but I think that so far as the gull is concerned the practice ought to be permitted. While I do not at present approve of any bounty on gulls, I feel that no protective law should apply to them anywhere in Alaska, and that the use of their eggs for food purposes should be permitted whenever desired.

The terns are also very destructive, as their food in some localities consists almost solely of salmon eggs and young salmon. In several instances I observed them diving for these eggs during the spawning season, and upon killing them their crops would be found filled with eggs.

American merganser.—Another destructive agent to salmon is the American merganser, commonly known as the sawbill. I observed many instances where this salmon destroyer had dug up eggs under the water and had also swallowed young salmon. In examining their crops, I found added assurance that their food at certain times of the year, at least, comprises salmon and trout and their eggs.

Hair seal.—Another very destructive agent to all fish is the hair seal. This animal has comparatively little value except as it is used by the natives for boats, wearing apparel, and for making souvenirs. Hair seals are very plentiful in certain localities and do a great deal of damage to fishing gear and to the fish caught therein. In one instance I saw two hair seals in a trap that had partly eaten or mutilated nearly every salmon that had been caught; and this is not of infrequent occurrence. Also in gill-net operations they are very troublesome and destructive, as it often happens that before a fisherman can haul in his net these hungry seals will bite into a large number of his catch of salmon, thereby spoiling them.

Trout.—Much has been said about the trouts, the Dolly Varden, cutthroat, steelhead, and rainbow, and the damage they do in consuming so many of the small salmon and eggs. This is no doubt true in a large measure, but it is only one of several principal contributing causes in the destruction of the salmon; and while I have seen, from personal examination, many trout whose stomachs contained small salmon and eggs, I think that, considering the value of trout for food purposes, they should not be annihilated, as has been advocated by many.

Sculpins.—Attention is also directed to sculpins, which are very destructive to salmon. Their efforts are confined chiefly to eating eggs and young salmon on the spawning grounds.

HALIBUT INDUSTRY.

The halibut industry in Alaska waters has expanded very much in the last few years, and is now second only to the salmon industry. In some localities, however, where halibut were formerly plentiful, there is a noticeable diminution, and while a few years ago large quantities of halibut were caught in readily accessible waters it is now necessary for the fishermen to go some distance in order to make satisfactory catches. A good example is Frederick Sound, which formerly was one of the best halibut grounds in southeastern Alaska, but where now the supply is greatly depleted. This, however, is not an extensive field, comparatively speaking.

Both the methods of fishing and the increased number of participants in the industry are responsible for the depletion of the supply. The former almost exclusive use of small boats assured a natural protection, for their use was confined to comparatively small areas, and rough weather limited the period of operations. At the present time seagoing vessels are used, and the field and time of operations are thereby greatly extended.



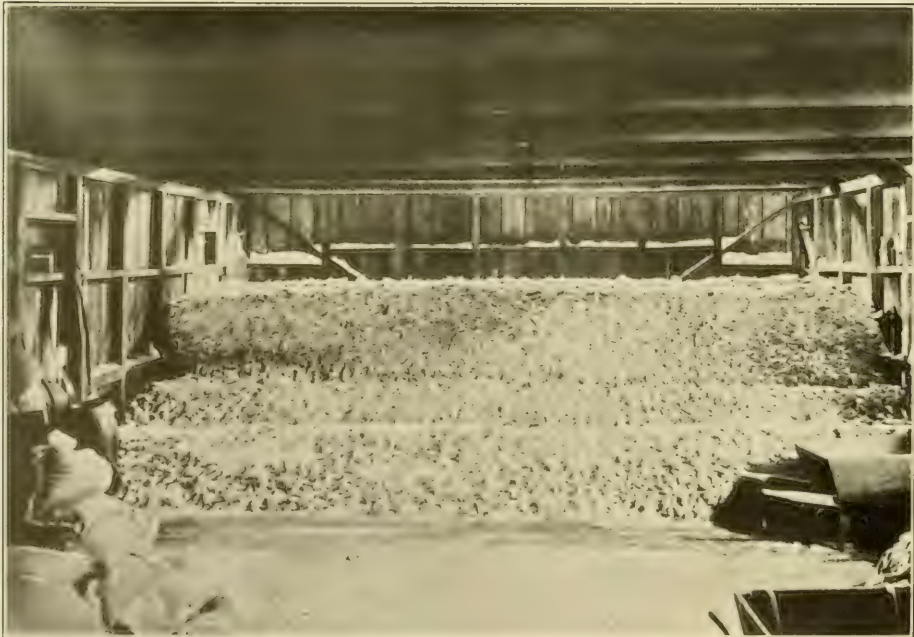
WATER COVERED WITH DO-OVERS AND UNDERWEIGHT CANS OF SALMON THAT HAVE BEEN THROWN OVERBOARD.



SORTING HALIBUT AS LANDED FROM FISHING VESSEL. THOSE ON THE DOCK HAVE BEEN DISCARDED, TO BE THROWN AWAY LATER.



SALT COD IN PICKLING TANKS AT UNGA.



250,000 POUNDS OF SALT COD. UNGA ISLAND



INDIAN METHOD OF DRYING HERRING SPAWN ON FIR TREES NEAR SITKA

There is a demand for a close season on halibut, but this does not seem feasible for the same reasons that a tax on halibut is not advisable. A close season would work a hardship on American fishermen as compared with Canadian fishermen.

It is popularly supposed, especially in the East, that most of the halibut consumed in this country come from the Atlantic. This is not correct, for the records show that Pacific waters supply about 85 per cent of the entire production of halibut. The bulk of this yield is from the banks off the coast of Alaska.

The initial preservation of halibut in large cold-storage plants in Alaska, where they are glazed in ice, and the subsequent shipment of them in refrigerator steamers to Pacific coast ports and thence by refrigerator cars to the eastern centers of distribution at Boston, New York, and elsewhere, insures the consumer a high-grade and wholesome food product. The Alaska halibut industry at present centers at Ketchikan. The principal shipping points are Seattle and Vancouver, but with the completion of the Grand Trunk Pacific Railway to Prince Rupert, British Columbia, that port is likely to become soon a most important center of the halibut industry. Prince Rupert is only about 90 miles from Ketchikan, and is 600 miles nearer than rail facilities at Seattle. Thus, halibut shipped by way of Prince Rupert can be laid down in eastern markets in from 24 to 48 hours less time than when shipped from Seattle. It becomes evident that American transportation interests must offer inducements in order to prevent a considerable loss of trade.

CODFISH INDUSTRY.

The codfish industry is the oldest fishery proper in Alaska, having had its inception more than 50 years ago while the Territory was still under Russian control. It has increased materially since that time and has proved a valuable asset, but there is still much ground that has been untouched; so we are assured of an abundant supply for many years to come. The Alaska codfish is of first-class quality, and notwithstanding occasional adverse reports it is equal in every way to the Atlantic cod. Some of the fishing grounds are still known only in a general way, and the Government should lend its assistance by pointing out more profitable banks, in order that the industry may be developed more extensively.

Unga Island, in the Shumagin Group, is the headquarters from which most of the shore-station fishing is done. Operations extend as far west as Unimak Island and as far south as Sannak Island, in the Sannak Group. The largest plant is situated on Unga Island, and last summer, upon the occasion of my visit, was entirely filled with salted cod, about 60,000 in number, averaging 4 to 5 pounds each, dressed weight. The fishermen are mostly resident Scandinavians, and they receive \$52.50 per thousand for fish over 26 inches long; and under this size they give two for one. They appear to be prosperous and happy, and that they have a comfortable living is evident. Most of the fishing is done from small boats, and the fish are brought to the shore stations, where they are dressed and salted. There is also a fleet of several schooners engaged in the cod fishery in this vicinity and in Bering Sea. The fish are cleaned and salted down in the holds as soon as they come aboard from the dories. When a full cargo has been obtained, the vessels proceed to their home ports, either at San Francisco or on Puget Sound. The product of the shore stations is likewise taken to those ports by transporting vessels engaged solely in this work. Some of the Alaska cod shore stations are in operation throughout the year. The method of curing codfish is clean and wholesome, and there was no part of the fishing industry that pleased me more.

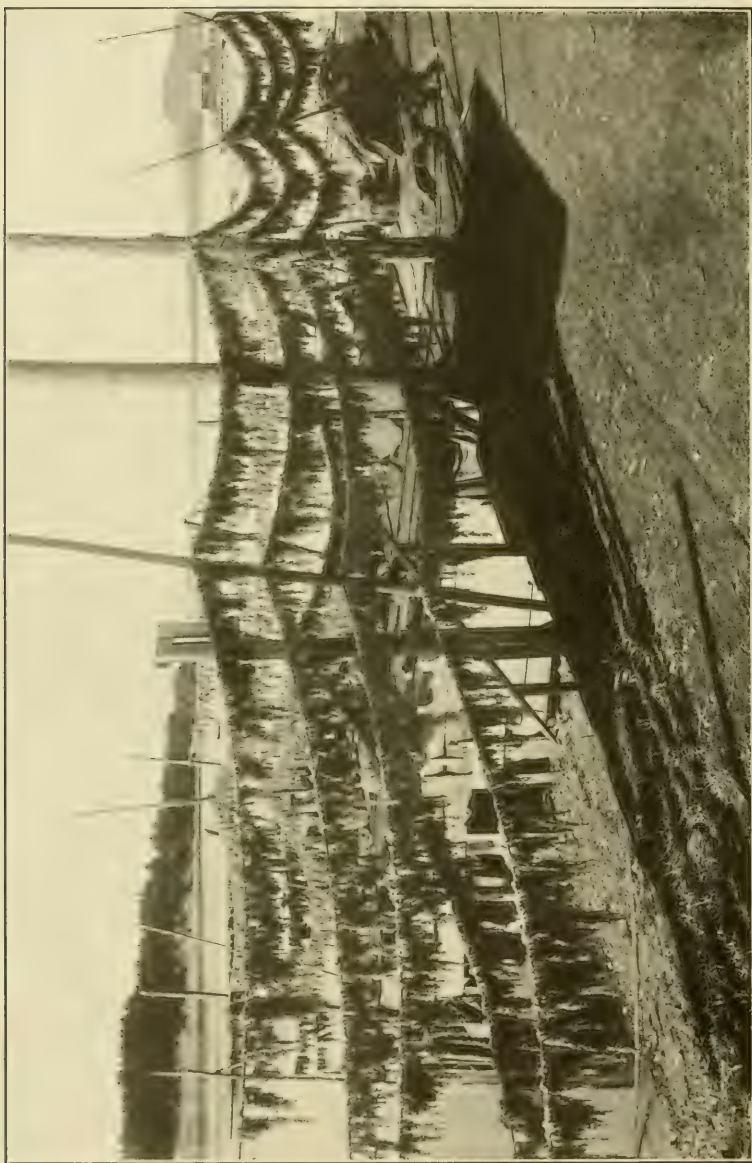
HERRING INDUSTRY.

One of Alaska's fisheries resources which is yet not fully developed is the herring industry. The herring is a valuable fish found in nearly all the waters of Alaska, usually in large schools, some of which cover several square miles of water. At the present time the Alaska herring is not used much for food purposes largely because the salmon industry has occupied the majority of the fishermen throughout the region. However, in the last year or so there has been a tendency to recognize the real value of the herring. That they are valuable as a food is beyond question, and future years will prove this conclusively.

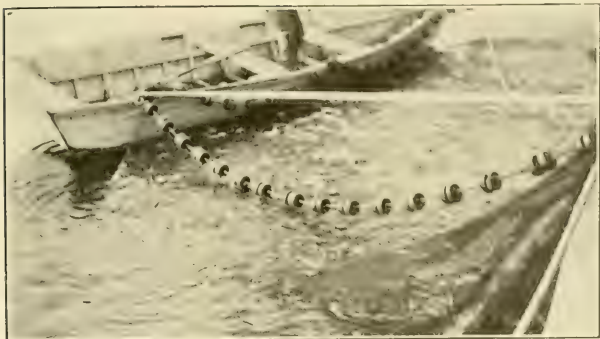
A reason why they are not used more freely for food during certain months of the year, during the summer season, is because of the discoloration of the flesh after death, due to the decomposition within the alimentary tract of a small red crustacean upon which the fish feed. Because of this objectionable feature and on account of market conditions, very few have cared to bother with them, and they are looked upon during these months as useless except for fertilizer or halibut bait; but when it is considered that Norway, whose herring industry is known the world over, has met with this same obstacle and overcome it one can



HERRING AND THEIR SPAWN. NOTE THAT THE EGGS WERE DEPOSITED ON BRANCHES THAT HAD FALLEN INTO THE WATER.



ANOTHER METHOD OF DRYING HERRING SPAWN BY NATIVES NEAR SITKA.



PURSE-SEINE HAUL OF HERRING.



BRAILING HERRING FROM A PURSE SEINE.



HERRING AND OTHER FISH AT KILLISNOO REDUCTION WORKS.

see that it can likewise be overcome in Alaska. The method used is simply to impound the fish for three or four days, thus permitting them to digest and eliminate this so-called "red feed" and the flesh is then as clear and suitable for food purposes as it is at any other season of the year. To-day there is an enormous quantity of herring used for halibut bait; in fact, thousands of barrels are put up each year for this purpose. Salt herring, however, are not as suitable for bait as are fresh or frozen herring.

It is hard to estimate the potential value of the herring industry from its present undeveloped condition, but it is safe to say that the outlook is bright and that this undeveloped business will be worth thousands of dollars each year to Alaska. Beyond question, herring should not be used for fertilizer, oil, or fish meal. The present practice of the Indians in southeast Alaska of taking millions of herring eggs every season and drying them for food should be stopped at once, for this not only means partial destruction of the future supply of herring, but is quite needless, since these Indians have many other ways of obtaining food.

USE OF FOOD FISH FOR FERTILIZER AND OIL.

For the last 25 years the manufacture of fertilizer and oil has been conducted by one factory located at Killisnoo, on the west coast of Admiralty Island. This industry has created much adverse criticism because of the general claim in Alaska that an edible and valuable fish like the herring should not be used except for food and bait purposes. It has been stated by the management of this plant that the business has not been a financial success, but it is safe to assume that any factory that has operated for a quarter of a century must be a paying proposition, otherwise it would not remain active. The manager of this plant emphasized the fact that they use almost nothing but herring, the only exception being an occasional straggler of other species. This, however, must have been a mistake, for I not only heard that all fish irrespective of species caught in the seines were used, but one evening last summer when a boatload of fish of about 125 tons, representing 875,000 herring, or approximately 1,250 barrels of 700 fish each, were being discharged into a large storage bin at the plant I observed that while most of them were herring there were also numbers of cod, a few halibut, and some flounders scattered all through the cargo. I called the attention of the manager to this condition, and was assured that these other varieties of fish had not been with the herring before, and therefore had not been utilized. A number of the employees, however, assured me that in every boatload there were fish other than herring.

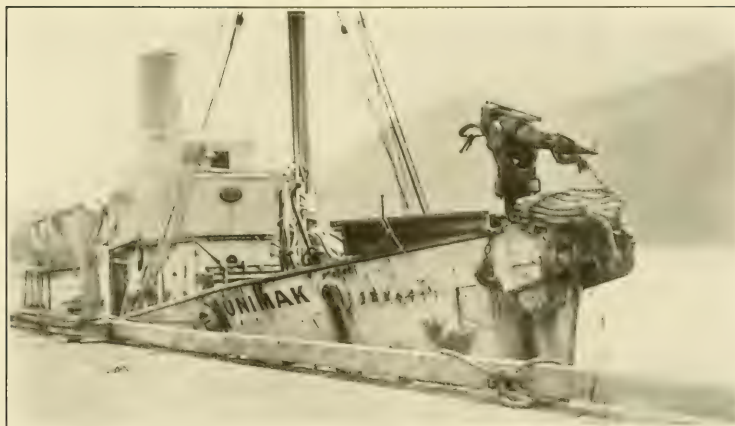
While this factory is now the single and isolated case, it seems to me that it should not be allowed to continue operations, but should be permanently closed by the Government. The further operation of this plant not only sets a bad example, but it destroys many thousands of good salable fish and opens the way for the establishment of other such reduction plants. In fact, just now there is a large company anticipating the same use of herring, and they are only waiting to see if the Government disapproves the continuation of the Killisnoo plant. Up to this year the Killisnoo factory has manufactured fertilizer and oil only. It has now partially discontinued the manufacture of fertilizer and is making instead a form of meal which is utilized chiefly for poultry food.

WHALING INDUSTRY.

The whaling industry in Alaska is confined to two shore stations and to intermittent and now unimportant efforts of old-time vessels operating on the high seas. In the latter phase of the whale fishery only the oil and whalebone of commerce are used, thus meaning that the carcass of each whale is wasted. At the shore stations, however, nothing is wasted, as every part of the whale is utilized, the products including various grades of oil, as well as fertilizer and animal meal. The whales handled include humpbacks, finbacks, sulphur bottoms, and sperms. The sperms are less numerous than the others, but they are the most valuable. A good-sized sperm whale is worth about \$3,000, consequently it is a prize for any crew and is hunted assiduously.

One of the Alaska shore stations is at Akutan, near Unimak Pass, and the other is at Port Armstrong, on Baranof Island, in southeast Alaska. These stations are modern and complete in every respect, and appear to be well conducted. The whales are killed by means of small steamers having a muzzle-loading gun mounted at the bow.

There has been much talk of a close season on whales. At the best, whaling stations can be operated only during four or five months of the year. Throughout the remainder of the year the boats are tied



ALASKA WHALING VESSEL OPERATING FROM A SHORE STATION. HARPOON GUN IS SHOWN AT BOW.



SHOOTING A WHALE. LINE WITH HARPOON ATTACHED MAY BE SEEN AT RIGHT OF PICTURE



SHORE WHALING STATION IN SOUTHEAST ALASKA.



FINBACK WHALE JUST KILLED, WESTERN ALASKA.



REMOVING BLUBBER FROM A FINBACK WHALE.



CARCASS OF LARGE SPERM WHALE, WITH BLUBBER REMOVED.

up and the stations are closed; and even during the active period there are many days when, because of bad weather, it is useless to go out, as it is impossible to shoot a whale when the sea is rough. This in itself acts as an automatic close season. At the present it does not seem that any legislation in the way of a close season on whales is necessary.

There has been much discussion concerning the effect the killing of whales might have on the supply of herring and salmon. But there is no reason for believing that the presence of whales has any important influence upon the run of fish. Whales subsist largely upon small crustaceans and other animal life found in the water, and while they may occasionally steal upon a school of salmon or herring with the result of driving them closer inshore, the total effect of such activities on the part of the whales is in all probability small.

TROUT.

In addition to the five species of salmon, there are several varieties of trout found in Alaska, among which are the Dolly Varden, steelhead, rainbow, and cutthroat. All these are excellent food fishes, and the Dolly Varden and steelhead are at present utilized to a considerable extent for commercial purposes. There is, however, a decided prejudice against them, amounting in places to a desire for their extermination, owing to their destructive habit of preying upon the eggs and fry of the salmon. In some sections drastic steps are being taken to destroy them. Until more definite information is at hand in regard to the amount of damage caused by these fish, activities in respect to them should take the form of utilization for economic purposes rather than destroying them.

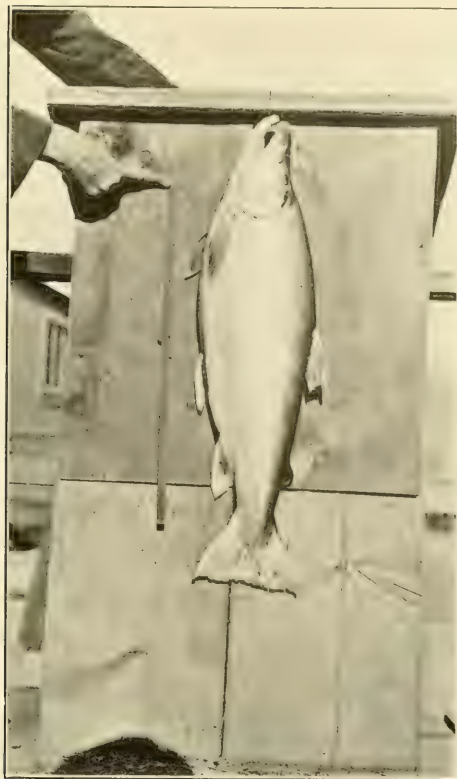
The value of the Dolly Varden trout for food purposes has already been established, but it would hardly seem that the possibilities of its future have been realized. This fish is to all intents and purposes the equal of our eastern brook trout, which brings a price of from 50 cents to \$1 a pound. With this thought in mind, it would seem that the Alaska Dolly Varden can be shipped in cold storage to markets in the east. Last winter one fisherman of southeast Alaska made a shipment of Dolly Vardens in cold storage to Seattle and netted \$500 on the venture. It was not long ago that some of the Pacific Coast States forbade the sale of this fish, which prevented their being brought in from Alaska; but since then the law has been properly interpreted and there is nothing to hinder the broadening and building up of this part of the industry. It is strongly advocated that this work be encouraged, instead of allowing the destruction and total waste of this valuable fish.

The canning of Dolly Varden trout, which is the most abundant of the trouts in Alaska, should be encouraged. Several thousand cases of them have already been packed within the last two or three years, principally on Kotzebue Sound, and they have found a ready market. The steelhead is highly prized for freezing purposes at the cold-storage plants in Alaska, but, unfortunately, the number of them obtained is comparatively small.

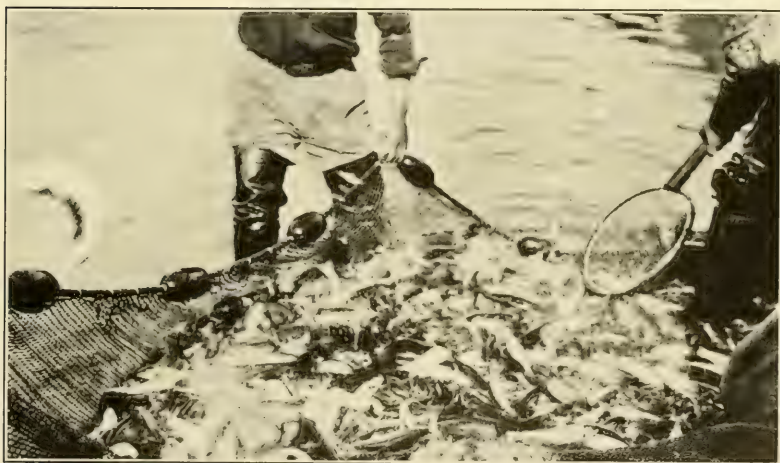
TAXATION.

The question of taxation is of vital importance to those engaged in the fishing industry, and while undoubtedly the present rates should be changed, any radical revision would be unfair and unwise. The present rate on canned salmon, all kinds, is 4 cents per case; on mild-cured salmon, 40 cents per tierce; on salt salmon in bulk, 5 cents per 100 pounds; on pickled salmon, 10 cents per barrel; fish oil, 10 cents per barrel; and fertilizer, 20 cents per ton. These rates seem too low, but I do not agree with the agitation for an extremely high tariff on such products, for the price usually received does not warrant it. A just and fair revision of this scale is submitted as follows: On canned salmon, king or spring, and sockeye or red, 8 cents per case; humpback or pink, and coho or silver, 6 cents per case; chum or dog, 4 cents per case; mild-cured salmon, \$1 per tierce; salt salmon in bulk, 10 cents per 100 pounds; pickled salmon, 20 cents per barrel; salmon bellies, \$1 per barrel; whale oil, 20 cents per barrel; whalebone meal, 40 cents per ton; whale fertilizer, 50 cents per ton; whale meal, 75 cents per ton. The propriety of revising the scale of taxation upon canned salmon is readily apparent when cognizance is taken of the varying values of the several kinds of salmon. There may be some objection to the seemingly high tax suggested for salmon bellies, but when it is considered that it takes about 200 fish to make one barrel of bellies, the tax suggested is not exorbitant.

It will be noted that no mention is made of a tax on oil or fertilizer manufactured from fish. This is because it is important that any industry using food fish for that purpose should be restrained from



DOLLY VARDEN TROUT FROM STIKINE RIVER, WEIGHT
9 POUNDS 1 OUNCE.



A SEINE HAUL OF DOLLY VARDEN TROUT IN KARLUK RIVER.

such action, and there would thus be no further necessity for a tax on this article. But as fertilizer will no doubt be made from the offal of canneries, there might be some question as to the advisability of a small tax on this article. The margin of profit must be small in gathering offal from the canneries, and therefore I would not advocate any tax at present on the commodities manufactured from this material. The new scale of taxes suggested for whale products is proper and just.

After mature consideration of the question of a tax on cod and halibut, I have come to the conclusion that such a tax is unwise, for the reason that it would handicap American fishermen in competition with Canadian or other foreign vessels. It must be remembered that a large proportion of the cod and halibut taken from the fishery banks off the coast of Alaska are caught on the high seas beyond the 3-mile limit.

COLLECTION AND USE OF TAXES.

The present system of collecting the tax on mild-cured salmon is very poor, and many tierces reach the States without paying any tax. This is due to evasive tactics upon the part of some of those engaged in the industry. At the present time the troller who mild-cures on his power boat brings several tierces to town and disposes of them to a mild-curing establishment. He may leave soon and neglect to pay the tax. The man who buys them says *he* did not cure or preserve this particular lot of salmon and therefore is not responsible for payment of the tax. It is easy to remedy this situation by holding the shippers responsible for all tierces they handle, and the customs officers should not permit shipment until all taxes have been paid. In this connection, it is suggested that some distinctive mark be placed on every tierce as soon as the tax is collected. It is fair to assume that almost half of the tierces of salmon heretofore packed in Alaska have come out tax free.

In order to insure the collection of all taxes on various fisheries products now exported from Alaska, it might be well for the collector of customs to refuse the issuance of clearance manifests until advised by the clerk of the court or other official charged with the collection of such taxes that the prescribed fees have been paid.

One other thing in connection with the taxes collected from the fishing industry is that it seems unfair and unbusinesslike that no part of this money is utilized for the protection and propagation of salmon or other food fishes. I would earnestly recommend that 30 per cent of all taxes collected in the future on the fishing industry be applied to the protection and extension of the fishing interests of Alaska.

LICENSE TAX ON GEAR.

That all fishing gear in Alaska should have a license tax levied on it is just and essential. The following scale is suggested: On traps, \$100 per annum; purse seines, \$75 per annum; haul seines, \$50 per annum; gill nets in Bristol Bay, \$3 per annum; in all other localities, \$2 per annum. It is further urgently recommended that every piece of apparatus on which the license tax has been paid shall be branded, showing the license number. It is further recommended that 30 per cent of the income from this source of taxation shall revert to the propagation of fish and the protection of the fishing industry.

DISTRICTS FOR PATROL SYSTEM.

A uniform and well-established system of patrol throughout Alaska is one of the most essential matters pertaining to the maintenance of the fisheries industries and the enforcement of the laws pertaining to salmon and other fish. Adequate protection along similar lines should also be afforded the fur-bearing animals. After much thought and consideration, taking into account the enormous territory that has to be covered in order to patrol approximately 600,000 square miles, I am convinced that the only feasible way of doing this work properly and systematically is to divide Alaska into five districts, as follows:

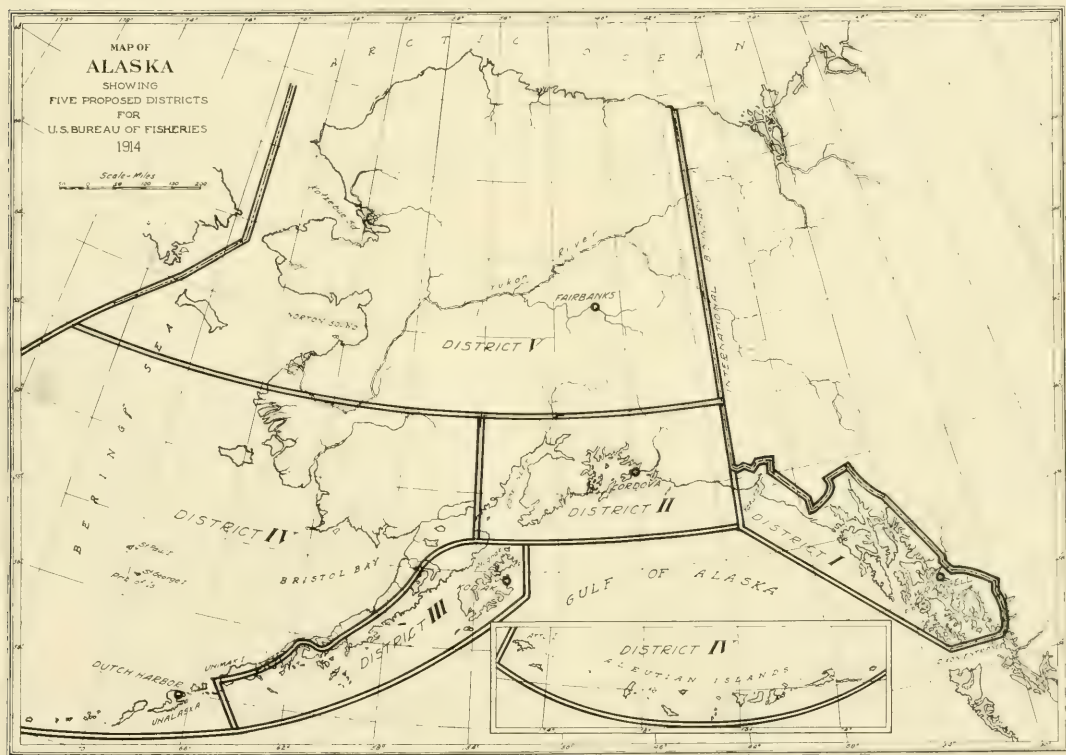
District No. 1.—From Dixon Entrance to Yakutat, with headquarters at Wrangell. This district requires the greatest amount of vigilance throughout the year, and should have a chief warden at a salary of \$2,000, an assistant chief warden at \$1,500, and eight wardens at \$1,000 each.

District No. 2.—West from Yakutat to and including Cook Inlet, and north to 62° north latitude, with headquarters at Cordova. This territory includes the fishing in Prince William Sound, Copper River delta, and the great fishing district of Cook Inlet. There should be a chief warden at \$2,000 and four wardens at \$1,000 each.

District No. 3.—From Afognak Island west to Unimak Island, including the southern coast line of the Alaska Peninsula, the Semidi, Shumagin, and Sannak Groups of Islands, also Kodiak and Afognak Islands, with headquarters at Kodiak. This is a section that needs work the year round and is a territory difficult to cover. There should be a chief warden at \$2,000 and three wardens at \$1,000 each.

District No. 4.—To include the waters and territory north of the Alaska Peninsula and Bristol Bay, to 62° north latitude, and west from Unimak, including all the Aleutian Reservation, with headquarters at Unalaska, or, preferably, Dutch Harbor. There should be a chief warden at \$2,000 and three wardens at \$1,000 each.

District No. 5.—To embrace all waters and territory north of 62° north latitude, which includes the Yukon River and tributaries; headquarters to be at Fairbanks. There should be a chief warden at \$2,000 and three wardens at \$1,000 each.



Five proposed districts for administering fisheries and fur-bearing animal affairs of Alaska.

The duties of these men would be many and diverse. During the salmon season, which varies in different sections and lasts from three to six months, their time would be well taken up with this work. At other periods of the year some of them could assist at hatcheries during certain busy seasons. Also, the fur-bearing animals, as well as the codfish, the herring, and the halibut industries, are to be looked after the year around. At the present time, outside of our meager work in southeastern Alaska, practically the rest of the vast territory has been abandoned so far as inspection work is concerned. It is ridiculous to assume that any one man can properly take care of 5,000 miles of coast line or patrol a territory of 100,000 square miles, as is expected with our present staff. The territory is entirely too large for interlocking the various divisions, and each chief warden should work with his men independent of the other districts and send reports direct to headquarters.

VESSELS.

A fundamental necessity in the protection of the fisheries of coastal waters is a fleet of vessels of a type fitted for the requirements of the region concerned and numerically proportionate to the extent of the waters to be covered. Alaska has the enormous coast line of approximately 26,000 miles and produces fisheries products each year valued at nearly \$20,000,000, yet in the all-important matter of patrol vessels for Alaska the Bureau of Fisheries has only the pitifully inadequate service of a single small steamer. This vessel, the *Osprey*, is only 72 feet long and of 40 tons measurement, and it is unseaworthy, topheavy, and quite unsuited to the needs of the service.

In reference to the unseaworthiness of the *Osprey*, I feel well qualified to pass judgment, for in my investigations and research this season I lived aboard her for 60 days and found conditions far from satisfactory. Her freeboard amidships is just 12 inches. From the deck to the top of the pilot house the distance is over 14 feet, and with the greater part of her machinery above the water line the vessel is so topheavy that a good breeze renders it dangerous to leave the dock. In an unusual blow last fall, the *Osprey* without warning turned completely on her side, lying flat on the water long enough for the engine room to be flooded. The officers and crew were penned up in this treacherous boat, and only by an act of Providence did a counter flurry right her in the next few seconds.

This is the vessel that is offered to our men to patrol 26,000 miles of coast line in boisterous seas to protect the great fishing industry of Alaska. The decks, pilot house, and many of the beams are rotten, and the boat must be handled with unusual care. The boiler is also defective, having been installed 19 years ago, when the boat was built.

However, I talked with men of experience who are familiar with vessels and their construction, and all admit that her hull is strong and sound and agree that this boat if properly refitted and provided with more efficient machinery would prove suitable for certain requirements of the Alaska patrol service. At the present time the *Osprey* is expensive to operate. With coal at \$8.50 a ton, she costs \$17 for every hundred miles covered and can maintain a speed of only 8 knots. By way of comparison, let me cite the following case: The *Osprey*, after she had been purchased in 1912, left Blaine, Wash., and on the trip to Ketchikan, a distance of 600 miles, burned about \$90 worth of coal. The *Warrior*, a vessel similar to the *Osprey* as to size, but equipped with a Diesel type of engine, made the trip from Seattle to Ketchikan, a distance of 660 miles, in less time and at a total cost of only \$10.50 for fuel, or about one-tenth of that required for the *Osprey*. This is a strong argument for taking out the *Osprey's* steam plant and installing a suitable type of gas engine, the estimated cost of which is \$12,000. This will make the boat safe and of some value to the Government, and at the same time will effect a saving on fuel of about \$15 per hundred miles, the latter figure being based on the average cost of coal in southeast Alaska.

The *Osprey* has been used only part of the time during the last two years in southeastern Alaska, due primarily to two reasons—first, lack of appropriations; and second, because she is unseaworthy and many days unable to leave her dock.

NEW VESSELS REQUIRED.

It is absolutely necessary to have more boats and funds to carry out the instructions of Congress in regard to the enforcement of the fishery laws of Alaska. Without more vessels and men it is almost as useless to make laws to protect this great fishing industry, worth nearly \$20,000,000 per annum, as it would be to lay 200 miles of railroad track in Alaska and then not furnish the money to buy a single car or locomotive for the benefit of the people for whom the railroad was built.

In order to conduct properly the patrol work in southeastern Alaska there should be the following: In the first district, a large vessel of about 100 tons and four fast patrol boats, the former to cost in the neighborhood of \$30,000 and the latter about \$9,000 each; in the second district, two patrol boats costing \$10,000 each; in the third district, one vessel costing \$20,000 and one patrol boat costing \$10,000; in the fourth district, a vessel costing \$20,000; and in the fifth district, one patrol boat costing \$20,000. The present method of chartering patrol boats is expensive and impracticable, and fails to accomplish the purpose sought. They almost invariably lack speed, which is one of the essentials in detecting violations of the fishery laws. The quarters on chartered boats are unsuitable, and our men are poorly housed and do not have the accommodations or consideration they deserve in performing such arduous and important work.



U. S. FISHERIES STEAMER "OSPREY," AT ZAREMBO ISLAND.



U. S. FISHERIES STEAMER "ALBATROSS," AT RESURRECTION BAY.

The waters to-day in western Alaska, including the fishing districts of Prince William Sound, Cook Inlet, Kodiak Island, Bristol Bay, and around the shores of the Alaska Peninsula, together with the Shumagin, Semidi, and Sannak Islands, are practically without any protection, and fishermen operate in any way they care to, without, I may say, even the slightest semblance of investigation or restriction. This is entirely due to the fact that there are no Government vessels to look after these vast and important fields. We have one man stationed at Afognak Island, not only an isolated place, but with the waters surrounding it and Kodiak Island treacherous and dangerous a greater part of the time, and all we have available for his use is an 18-foot skiff. In this he is supposed to investigate fishery violations and follow fast-moving tugs and fishing boats. As a result, this Government official has been forced to jeopardize his life by going out in this skiff, or resort to the unfortunate and inexcusable practice of asking a cannery to furnish passage on a boat so that he may investigate the company's own fishery operations. This is the only safe means he has of getting there. The necessity of such a practice is ludicrous and absurd in the performance of official inspection work.

To cite one instance which reflects discredit on the Government: One of our chief officials in Alaska requested that a cannery tug take him to a certain fishing ground so that he might see if the law was being violated. The company's superintendent readily acquiesced, and when he was nearing the fishing grounds blew five long blasts. The Government official naturally inquired why this was done, and the answer came back: "I am very sorry, but my instructions from the boss are to warn all the fishermen by five whistles when any of our boats are carrying a United States fisheries official." In other words, they were in the habit of violating the law and this was a warning that they must desist for the time being. It is needless to say that when the official went ashore the plant was all in order and everybody was attending to his duty in the proper way.

This explains the whole situation in a very few words, and it is earnestly hoped that it will not be necessary for this practice to continue. Could there be a more unfortunate condition, and can we expect any better results from the meager facilities we now have? All through this section, and farther beyond, the salmon fishing, the halibut fishing, and the partly developed codfish operations need investigating and looking after the greater part of the year. The Aleutian Reservation, 1,000 miles long, has never had her fisheries investigated, and yet there are certain conditions that should be changed and looked into without delay. This can be done only if there is a boat stationed there the year round. Bristol Bay, one of the greatest salmon sections in Alaska, where two months of the year the water is teeming with the valuable red salmon, can be covered only by accepting the courtesy of boats belonging to the canneries our men are sent to inspect. With the development and expansion of the industry, it is only a question of time when Kotzebue Sound and the adjacent region will be invaded by canneries. To-day there is but one in that section, but to-morrow there will be more, and we need to be there.

PAY OF OFFICERS AND CREW.

The question of the pay of the officers and crews on the vessels in our service is a very important matter. Having at present only one vessel in our Alaska service, I can cite only one case, but it is enough to illustrate the condition as it now exists. To-day the captain of the *Osprey* is paid \$125 a month, the chief engineer receives \$91.66, the firemen \$60 each, a seaman \$50 a month, and the cook \$50, *each having to pay his own board*. I took this question into consideration for two reasons—first, because of the complaints I have heard in Washington ever since I have been connected with this Bureau; and, second, because there was continual trouble in securing a crew during the two months I was on the *Osprey*. The captain and the engineer, men of knowledge and judgment, have felt that the Government will see this situation in the proper light before long, and they therefore made no general complaint to me that they were underpaid. I consulted owners of boats, both larger and smaller than the *Osprey*, and found that the following scale of wages prevailed on about all vessels of from 30 to 100 tons in Alaska: Captain, \$125 to \$150 a month; mate, \$100 to \$125; chief engineer, \$90 to \$125; assistant engineer, \$75 to \$100; firemen, \$60 to \$75; seamen, \$60 to \$70 each; and the cook, \$65 to \$100, *all wages including board*. The officers of the *Osprey* to-day are men of integrity and ability, and they afforded me valuable help in carrying on my investigations. The Government can ill afford to lose these men, and with more lucrative positions offered them it is a wonder that the Government has been able to retain their services as long as it has.



DECK LOAD OF COAL ON FORWARD DECK OF "ALBATROSS"



COAL IN GANGWAY ON DECK OF "ALBATROSS."

ALBATROSS.

There is an important matter regarding the *Albatross*, the largest vessel engaged in general deep-sea fisheries work for the Government, that I want to mention. This is in regard to converting the vessel to an oil burner.

I was on the *Albatross* for nearly two months this season and had ample opportunity to study her myself and to listen to the discussions of others who knew her better than I did from the point of experience and actual contact with conditions. This vessel, while rather old, has a hull which is in splendid condition and good for many years. The fact, however, that the *Albatross* is a coal burner makes her expensive to operate and lessens her efficiency, particularly on account of a reduced steaming radius. On an average day's run at 8 knots an hour, the fuel consumption is now about 12 tons of coal, which, based on prices in western Alaska, costs about \$144. If the vessel were converted into an oil burner, at a cost of about \$26,000, she would save nearly \$2,500 in one month for fuel alone, or approximately \$15,000 in a year, based on six months' cruising. The present limited coal-carrying capacity is such that for a trip of any distance a heavy deckload of coal must be carried. Outside of the mere fact that it makes everything dirty and unsightly, it is an extremely dangerous situation, for if the vessel ever met with heavy weather in this condition there would be danger of the upper works being stove in, the ultimate result of which might be to cause the ship to founder. The installation of oil-burning equipment would do away with the chance for any such disaster.

HATCHERY WORK.

Hatchery work in Alaska, both private and Government, deserves the utmost consideration. There are five private hatcheries in the Territory—one on Karluk River, Kodiak Island, owned by the Alaska Packers Association; one on Heckman Lake, Revillagigedo Island, southeastern Alaska, owned by the Alaska Packers Association; one on Hetta Lake, near the southern end of Prince of Wales Island, owned by the Northwestern Fisheries Co.; one near Boca de Quadra, at the head of Smith Lake, on Buschmann Creek, in southeastern Alaska, also owned by the Northwestern Fisheries Co.; and one at Klawak, on the west coast of Prince of Wales Island, owned jointly by the North Pacific Trading & Packing Co. and the North Alaska Salmon Co.

These private hatcheries have for the past 10 years produced annually an average of 98,000,000 sockeye or red-salmon fry, and since the passage of the act of June 26, 1906, have received from the Government a rebate therefor on their fishery tax at the rate of 40 cents for every thousand red or king salmon fry liberated, which rate is the equivalent of the tax on 10 cases of salmon. The question of whether or not the future supply of this variety of salmon has been benefited is hardly the point to be considered to-day. The fact remains that the Government is granting a rebate that should be discontinued without delay. The United States Bureau of Fisheries is doing excellent work in Alaska, and it is good business to presume that the practice of paying private concerns to carry on this part of what is really the Government's business should cease at once, and in the future all such operations should be conducted by the Government through the proper department. The obligation that the Government must assume when it repeals the present law prohibiting further buying of fry or rebating in connection with the salmon canneries is an open question.

In connection with the recommendation that the law allowing rebates on private hatchery output be repealed at once, I would also suggest that the five private hatcheries in Alaska be looked over carefully this coming year by a board of three from the Bureau of Fisheries, to determine whether their operation under Government ownership should be considered.

PRIVATE HATCHERIES.

The Karluk hatchery has been operated for 19 years. It is situated about a mile and a half from the mouth of the Karluk River. The buildings are in a fair state of preservation. The interior and working part of the plant is also in fair order, but it is evident that the location is very undesirable. Under present conditions, it is necessary to deposit the fry in salt water, which is objectionable and can not possibly produce the desired results. The capacity of this hatchery is about 50,000,000 salmon eggs.

The Heckman Lake hatchery, commonly known as the Loring or Fortmann hatchery, has inexpensive buildings, but they are in a fair state of preservation. This place is 8 miles from navigable water, and it is rather inaccessible, in view of the fact that it may be reached only by crossing a lagoon, two portages,



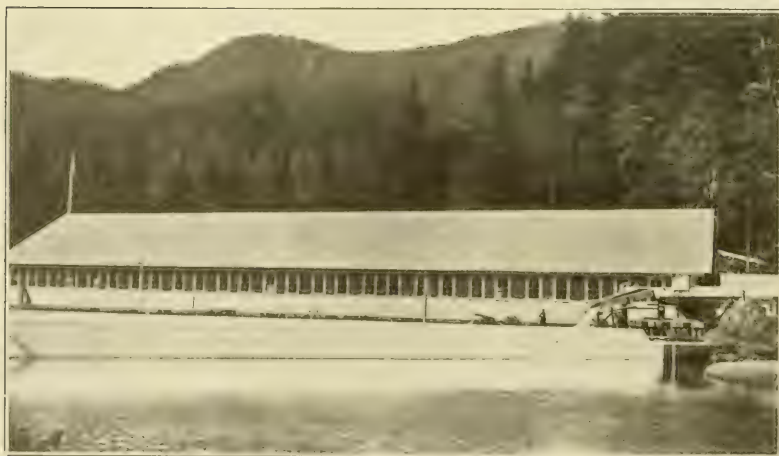
YES BAY HATCHERY BUILDINGS.



INTAKE OF WATER-SUPPLY FLUME AT YES BAY HATCHERY.



TRAMWAY FROM YES BAY TO LAKE McDONALD.



MAIN HATCHERY BUILDING AND RETAINING RACK. YES BAY STATION.



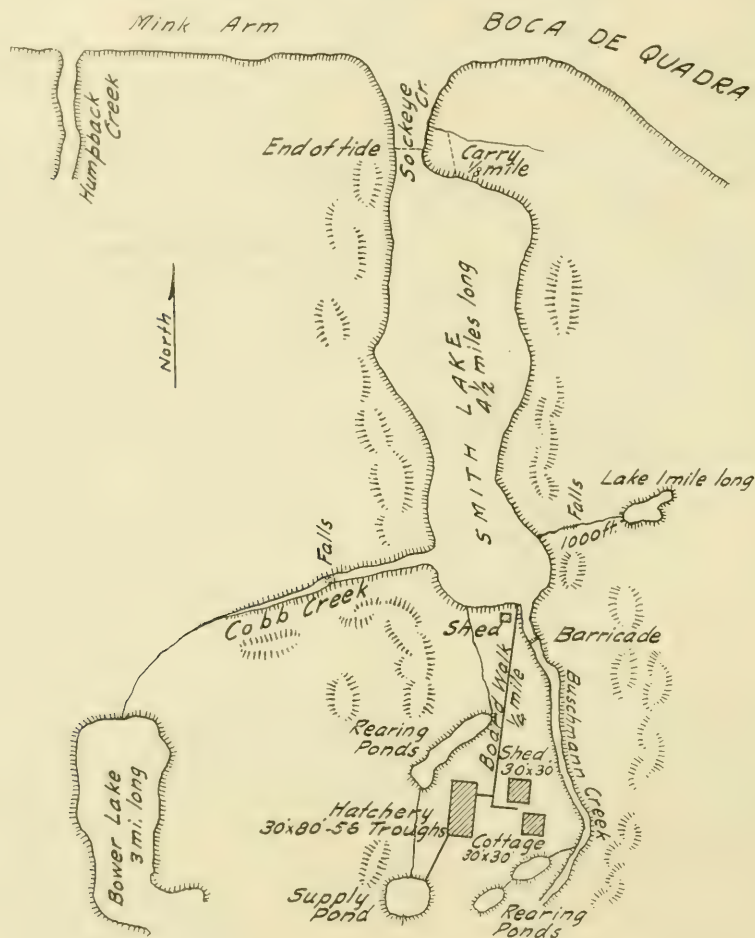
TRAMWAY LEADING FROM SALT WATER TO AFOGNAK HATCHERY, SHOWING ALSO LITNIK RIVER.



AFOGNAK HATCHERY, WITH SAWMILL AT EDGE OF WATER.

and two lakes. For this reason it is objectionable on account of the difficulty experienced in the transportation of supplies. However, with the possibility of broadening the work, and with a splendid water supply at hand, it deserves careful consideration. This hatchery is the largest in the world for the propagation of salmon, having a capacity of 110,000,000 eggs. It has several good rearing ponds.

The Hetta Lake hatchery has carried on its work in a small way. With better protection of the stream where the adult salmon enter the lake, egg collections can be improved, and it seems likely that



Sketch of Boca de Quadra hatchery and vicinity.

profitable fish-cultural operations can be conducted at this plant. The hatchery was rebuilt two years ago and now has a capacity of about 12,000,000 eggs.

Conditions at the Klawak hatchery are in a general way similar to those at Hetta. The average take of red salmon eggs during the last few years at Klawak has been under 5,000,000. This is only about half the maximum capacity of the hatchery. The building is plain, but in good condition.

Of the smaller hatcheries the one that most impressed me was that commonly known as the Boca de Quadra hatchery, situated at the head of Smith Lake. The buildings are simple and inexpensive, but not conveniently arranged. This, however, is a condition that can be readily corrected, since the



SOME OF BUILDINGS AT AFOGNAK HATCHERY.



LITNIK MOUNTAIN FROM AFOGNAK HATCHERY. THE WHITE APPEARANCE OF MOUNTAIN IS DUE TO VOLCANIC ASH RATHER THAN SNOW.



WATER SUPPLY RESERVOIR AT AFOGNAK HATCHERY.



INTERIOR OF AFOGNAK HATCHERY.



SEINING SOCKEYE SALMON IN CREEK AT AFOGNAK HATCHERY.



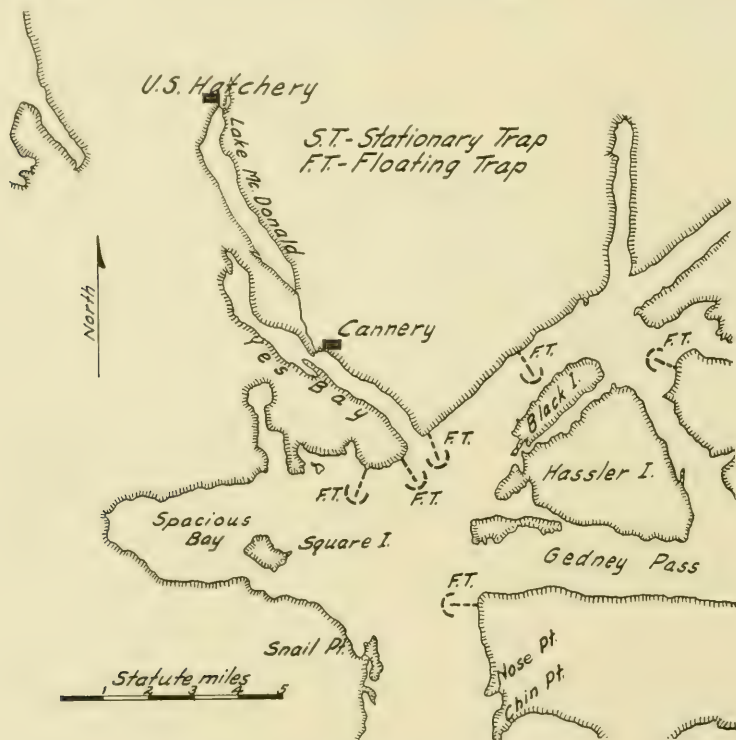
SEINING SALMON JUST BELOW RACK AT AFOGNAK HATCHERY. NOTE HEAD NETS FOR PROTECTION AGAINST MOSQUITOES.



TAKING EGGS FROM SOCKEYE SALMON, AFOGNAK HATCHERY.

more important features are well covered. The buildings were new last year, and several fry ponds have been built. Buschmann Creek and also Cobb Creek, another large stream entering Smith Lake, were both teeming with sockeye salmon this fall, assuring an abundant supply of eggs for a much larger hatchery than the one now in use, the capacity of which is about 18,000,000 salmon eggs. There is also good evidence of a sufficient water supply.

In connection with this hatchery I would like to speak of a stream 4 miles away known as Humpback Creek, which empties into Mink Arm. This is one of the best humpback salmon streams in southeastern Alaska. Last September the Yes Bay hatchery collected from Humpback Creek 2,600,000 humpback salmon eggs. This stream would be of great assistance in supplying the hatchery already established at Buschmann Creek, provided its capacity were increased. This location and the conditions impressed me most favorably, and its close proximity to the main waters makes it all the more valuable.



Vicinity of Yes Bay hatchery, showing traps off mouth of bay that hamper hatchery work.

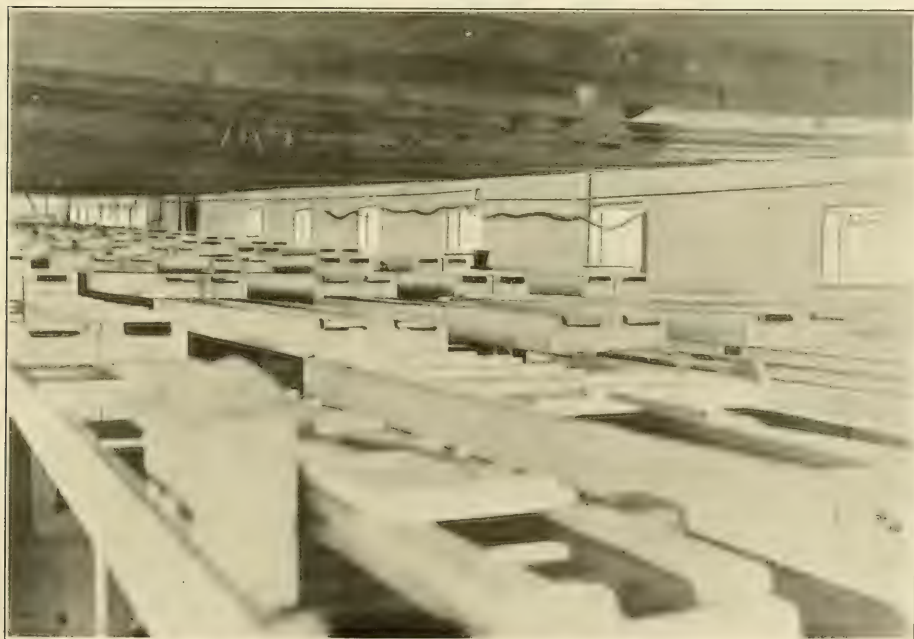
GOVERNMENT HATCHERIES.

There are two Government hatcheries in Alaska, one known as the Yes Bay hatchery, situated at the head of McDonald Lake, on Cleveland Peninsula, in southeastern Alaska, and the other on Litnik Lake, on Afognak Island, a Government reservation between Shelikof Straits and the Gulf of Alaska. I visited these hatcheries and scrutinized every detail carefully. In connection with their operation I have little but favorable comment to make. Both of them were in splendid condition inside and out, and the only suggestion I would offer is that the work be expanded in every possible way in order to keep pace with the ever increasing need for replenishing the supply of salmon. The present normal capacity of each of these stations is about 75,000,000 red-salmon eggs.

At Afognak there is great need for erecting a feeding shed to cost about \$1,500. The station is equipped with a sawmill, and spruce timber is close at hand which may be worked up for this purpose.



REARING PONDS AT FORTMANN HATCHERY.



INTERIOR OF FORTMANN HATCHERY.



VIEW OF FORTMANN HATCHERY, ON HECKMAN LAKE. THIS IS THE LARGEST SALMON HATCHERY IN THE WORLD, HAVING A CAPACITY OF 110,000,000 EGGS.



KARLUK HATCHERY ON KODIAK ISLAND.



KARLUK HATCHERY SHOWING WATER SUPPLY AND TRAMWAY FOR HANDLING ADULT BREEDING SALMON AND FRY.



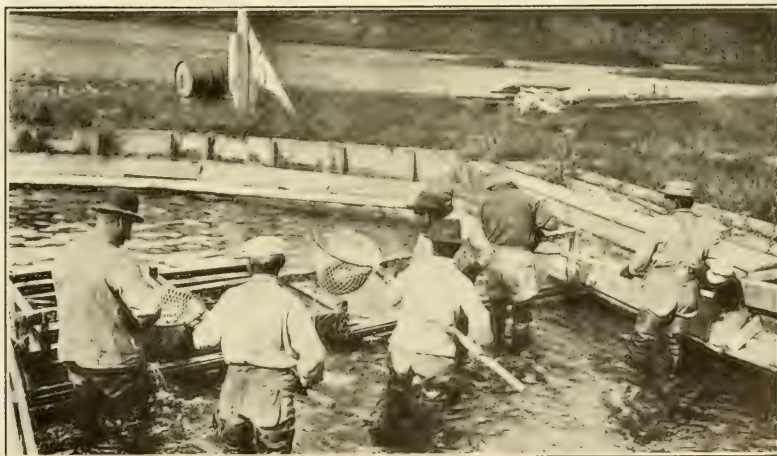
TAKING SPAWN FROM SOCKEYE SALMON AT KARLUK HATCHERY.



INTERIOR OF KARLUK HATCHERY. SALMON EGG BASKETS REMOVED FROM TROUGH.



TWO MATURE MALE SOCKEYE SALMON, SHOWING CONTRAST IN SIZE, THE LARGER WEIGHING 11 POUNDS AND THE SMALLER 13½ POUNDS



SORTING BROOD SOCKEYE SALMON AT KARLUK HATCHERY.

Afognak still feels the effects of the eruption of Katmai Volcano in June, 1912. The deposit of ash is still to be seen on the trees and hills and there is so much washed into the streams that the take of eggs is far below the normal. It is likely that conditions from now on will improve rapidly.

In regard to the Yes Bay hatchery, there is but little to suggest, except the extension of the feeding pond system. This is a matter of great importance. There is a tramway half a mile long between the landing and McDonald Lake. It is in bad repair and should be attended to at once, for an accident to the trestle on which the track is laid might cause the loss of property as well as result in injury to some of the employees. Another needed improvement is the construction of a branch of the present tramway, starting at the power house and continuing through to the Yes Bay cannery, a distance of a mile and a half. This would permit safe communication at all times of the year. The fact that there is no trail and that the undergrowth is unusually dense, together with the deep snow, makes it almost impossible to get over this ground, and on account of thin ice it is impossible during three or four weeks in the fall and spring to get down to the cannery at Yes Bay, where the weekly mail boat stops, and if a physician or supplies were needed in an emergency they could not be obtained.

The question of the supply of fish at these hatcheries is of the greatest importance, in order to insure a maximum take of eggs at the least possible cost. At the present time and under the existing law, the cannery people have the right to encroach on the territory that should be exclusively reserved for these hatcheries. The work of the hatcheries, both public and private, is so important that there should be nothing to prevent the salmon having full sway in reaching waters where they will be available for use at the hatcheries.

The question of raising more humpback or pink salmon in southeastern Alaska is very important, as over 90 per cent of the total pack of this variety is canned in that part of the Territory. In addition to this, I would earnestly recommend that the custom of distributing fry should be modified, and the quantity diminished each year until it is made possible to feed the entire output of hatchery fish to the fingerling stage, so that when placed in the water they will have some real future value. The more I see of fish-cultural work the more I am impressed with the fact that the fewer fry distributed and the greater the number of fingerlings the more pronounced will be the practical results in the way of increased runs of salmon.

MORE HATCHERIES NEEDED.

Beyond question there should be a number of new Government hatcheries. This is a valuable work, if conducted along proper lines, and upon it will depend in no little measure the future supply of salmon in Alaska. This matter should have immediate consideration, and the following locations are suggested as suitable for these new hatcheries:

Redoubt or Deep Lake.—This lake is 15 miles south of Sitka. The water supply is excellent, and about 55,000 sockeyes were taken there last year.

Eyak Lake.—This lake is close to the town of Cordova and at the present time is protected by a closing order of the Secretary of Commerce. This order should continue in force, and on account of the good run of red salmon, the accessibility of the lake, and the fact that a splendid water supply is available, a hatchery should be established on the lake.

Chignik Lake.—This body of water is in central Alaska. Canning operations have been carried on here extensively for years and the supply of salmon is growing less. There is great need for a hatchery here. Chignik Lake was surveyed by the Bureau of Fisheries three years ago, having this purpose in view, and favorable recommendations were made. There was no place in Alaska that appealed to me more as a proper place for fish-cultural work.

Chilkat Lake.—This lake is situated near the northern part of Lynn Canal and in the past has received some consideration as a hatchery prospect. It is an admirable place for another Government hatchery and reservation.

MARKED FISH.

Another interesting feature in connection with the hatchery work is the branding of salmon. At Chignik a large number of sockeyes with a distinct V-shaped mark in the tail were taken. Another time, at Boca de Quadra, a number of sockeyes with a V-shaped mark in the ventral fin were taken, and while it is impossible to determine at present where they originated it is possible that they were marked at some hatchery.



SORTING SOCKEYE SALMON, KARLUK HATCHERY.



MOUTH OF GLACIER CREEK, TRIBUTARY TO EYAK LAKE. SOCKEYE SALMON IN WATER.



HATCHERY BUILDING, BOCA DE QUADRA.



SMITH LAKE, BOCA DE QUADRA.



MOUTH OF BUSCHMANN CREEK, BOCA DE QUADRA HATCHERY.



REARING PONDS AT BOCA DE QUADRA HATCHERY. POLES ARE PLACED ACROSS TO SUSTAIN NETTING WHICH PREVENTS DEPREDACTIONS OF BIRDS.

DISREGARD OF FISHERIES LAWS.

It is an unfortunate fact that efforts are made by some of the cannery interests in Alaska to conceal violations of the law, and I think it is only proper to cite several cases which show the necessity for a better patrol system in order to curtail this disregard of the law.

In one instance, when a certain cannery in Alaska was advised that I was close by but could not reach their fishing grounds immediately, the superintendent hastily sent a messenger across the country to warn the fishermen of my approach and stop illegal fishing. About two hours later, when I reached there, the first thing that greeted my ears was the talk among the native fishermen as to what all the disturbance was about. It was very evident to me that the superintendent had started something which they did not understand.

At another time, when coming into an important fishing section, a fog obscured our vessel until we were almost upon a seine outfit. The fog suddenly lifted and showed the fishing gear being hauled by powerful tugs directly across the mouth of the stream. Of course, upon seeing us they stopped as soon as possible. When I later called the attention of the superintendent of the cannery to the matter, he laughed it off with a remark to the effect that you know we do the best we can. But I learned afterwards that this was a common occurrence. We have practically no patrol in either of these regions.

In another place, where one of our officers had recently taken a cannery to task for allowing its fishermen to violate the law, the superintendent resented his interference. I happened to be in that country later and heard threats against this official that they would "get him" and "would see that he did not remain long in the service."

Another case was in respect to three fishing boats that ran into a bay at night without any lights, running as far as they could to the headwaters, then launching their boats and hauling their short seines in shallow water and making their escape before daylight.

These are only a few of many cases, and the only way to stop such flagrant and intentional violations is to have a sufficient number of vessels and an adequate force of men to patrol effectively all the fishing grounds. It is only fair to say, however, that there are some cannery men in Alaska who have every regard for the fisheries laws and who are doing their utmost to observe faithfully all regulations and requirements. It sometimes happens, however, that irresponsible subordinates are a source of much annoyance to such conscientious cannery men who are trying to fulfill both the spirit and the letter of the law.

ENFORCEMENT OF THE LAWS.

The enforcement of the fisheries laws of Alaska is, of course, an important feature in the preservation of the supply of fish. The few officials connected with the Bureau of Fisheries have done and are doing their utmost; but the fact that they have met with much opposition has handicapped them in obtaining convictions. I am advised by reliable authority that up to this year there had not been a single conviction by a jury in Alaska for violation of the fishery laws. I am glad to say that there has been a change of sentiment and feeling against those who do not regard the laws as serious, and recently the juries in two courts have brought in verdicts against those who had disobeyed the law.

In the past, not only have our officials received small support from the majority of the United States commissioners and some of the deputy marshals in Alaska, but they have actually been opposed by some of them in carrying on their duties. In one instance the commissioner and deputy marshal and deputy clerk of the court were actually interested in a cannery and did everything in their power to see that their private interests were not molested and that their company was not prosecuted after it had been found violating the law. This is a deplorable condition, and until rectified there is small chance of bringing to justice those who violate the law.

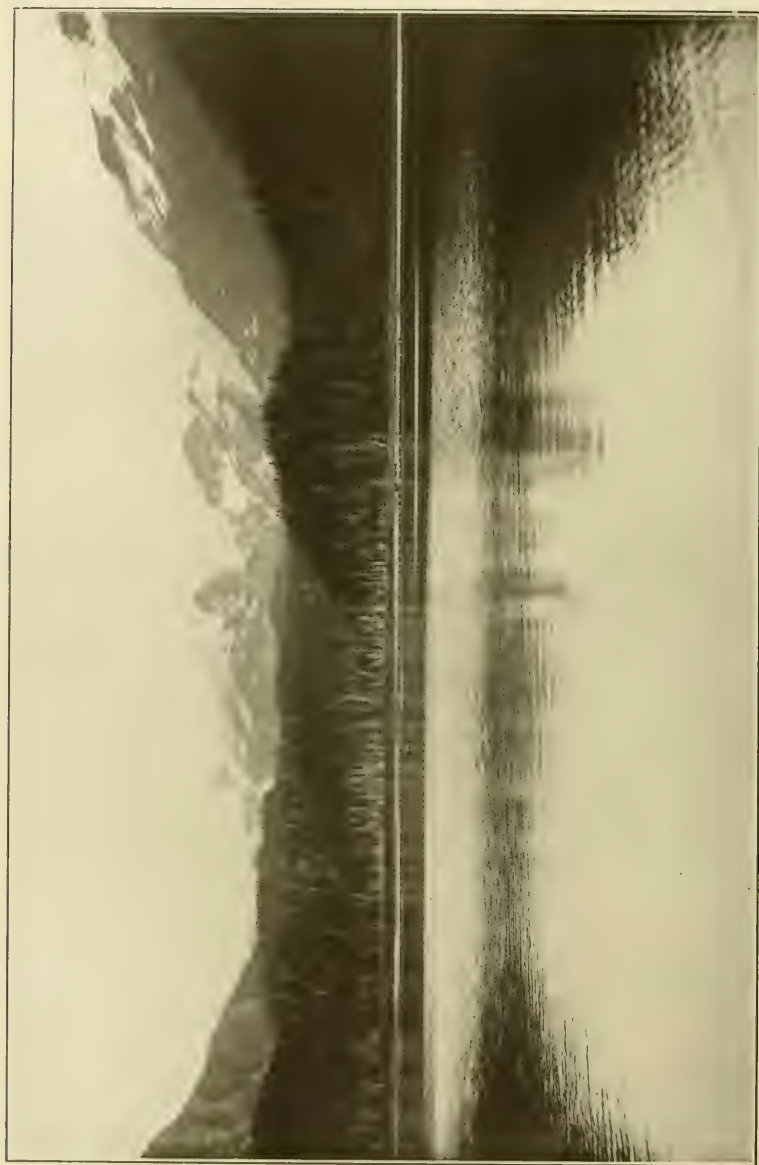
Government officials in Alaska should not be interested in any of the local industries. The United States commissioners to-day receive paltry fees, which fact accounts in a large measure for the perpetuation of the existing conditions. It is imperative that this condition be changed without delay. These men should receive substantial and fixed salaries from the Government, and the offices should be filled with reliable and responsible men. It is hard to realize the antagonism and the influences brought to bear by these men on other officials of the United States Government who are trying to live up to their oaths and enforce the fisheries laws.



HUMPBACK CREEK, MINK ARM, WHICH POSSESSES SPLENDID POSSIBILITIES FOR HATCHERY WORK.



LIVING QUARTERS, BOCA DE QUADRA HATCHERY.



EYAK LAKE NEAR CORDOVA, SUITABLE FOR HATCHERY SITE.



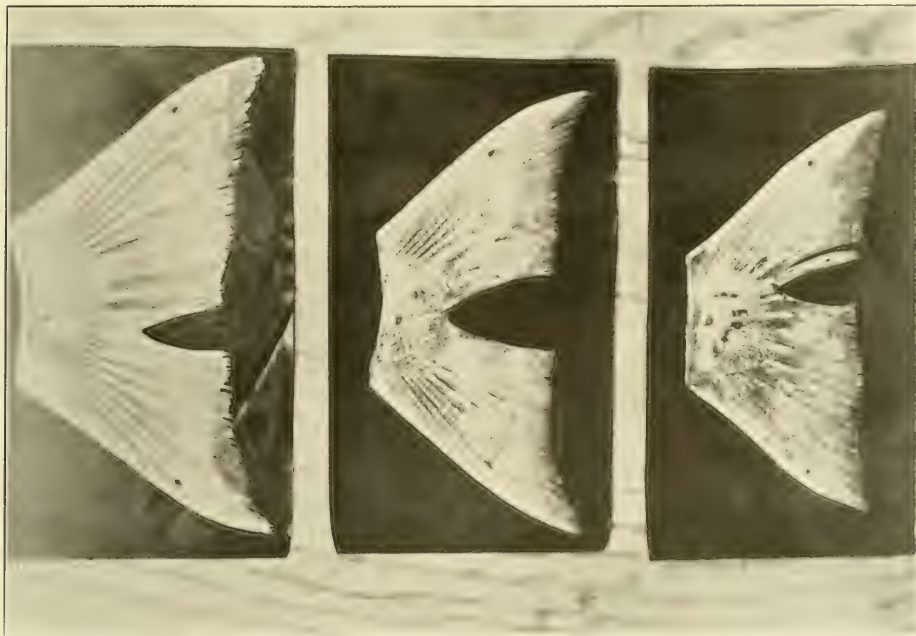
HETTA LAKE HATCHERY.



INTERIOR OF HETTA LAKE HATCHERY.



REDOUBT OR DEEP LAKE NEAR SITKA. THIS IS A GOOD HATCHERY SITE.



SEVERAL HUNDRED SALMON WERE CAUGHT AT CHIGNIK LAST SEASON WITH FINS NOTCHED AS ABOVE. IT IS POPULARLY CLAIMED THAT SUCH FISH HAVE BEEN MARKED.



A NUMBER OF SOCKEYE SALMON WITH FINS AS ABOVE WERE TAKEN AT BOCA DE QUADRA. POSSIBLY THESE FISH WERE MARKED AT A PRIVATE HATCHERY.

In September, upon invitation, I addressed the grand jury at Juneau, and the gist of my talk was that not only was it a fact that no jury in Alaska had ever returned a verdict against the fishing interests, but it was almost impossible to find a United States commissioner or deputy marshal who was in sympathy with the prosecutions. It was placed before them clearly that until there is a change in the sentiment in the jury room regarding these interests when they violate the laws there is very little use in trying to protect the valuable fisheries of Alaska. I was asked by this jury to write a letter stating briefly what I would recommend for the betterment of these conditions, and the following is a copy of my communication:

JUNEAU, ALASKA, *August 24, 1914.*

To the FOREMAN OF THE GRAND JURY,
Juneau, Alaska.

At the suggestion of your honorable body, based on my address before you this afternoon, I respectfully offer the following brief suggestions for the protection and preservation of the great fishing industry of Alaska:

First. The appropriation by Congress of sufficient money to build at least nine adequate and modern boats for the patrol of all the waters of Alaska.

Second. The appropriation of sufficient money to provide an adequate personnel of not less than 25 competent men, as wardens, inspectors, etc., who will be able to cover properly the coast and inland waters of Alaska at all times and be assured sufficient funds for their traveling expenses and subsistence.

Third. The appropriation of sufficient funds to provide for at least four new hatcheries and their maintenance where the artificial propagation of salmon can be conducted along sound business principles.

Fourth. At least part of the money collected for tax on fish and fishing interests should be used for the protection and maintenance of the fisheries of Alaska. To-day the tax on fish exceeds the amount appropriated by Congress for the maintenance of the Alaskan fisheries, still no part of that revenue reverts to the protection of its point of origin.

At all events it is obvious that the great industry is on the wane, and radical steps should be taken to protect it before it is too late.¹

If the foregoing suggestions are clearly and fully carried out, I have no apprehension of the failure on the part of the United States Fish Commission to protect the fisheries of Alaska, thereby assuring the future of this vast industry.

Necessary changes of the laws are imperative, but these will no doubt be properly acted upon on the receipt of my report.

Very respectfully,

E. LESTER JONES,
United States Deputy Commissioner of Fisheries.

LABOR QUESTIONS.

Alaska is such a vast territory, and its various enterprises are growing so rapidly, that the labor question is becoming an important one. As yet the country is sparsely settled and must depend largely on imported labor during the busy season. This has created a business complication which has not as yet been satisfactorily solved.

Resident fishermen.—In southeast Alaska this element composes a considerable proportion of those engaged in taking salmon for the various canneries. The past season there were many idle men in southeast Alaska, and upon inquiry I learned that most of them were fishermen. Their idleness was attributable to two causes—first, they were refused employment by certain canneries which preferred imported and alien labor; and second, because of the fact that they had listened to agitators and trouble makers, who did not have their interest at heart but who simply desired to create trouble for the canneries. Instead of accepting regular employment and making use of the opportunity to earn good wages during the fishing season, they spent their time in saloons and around the town creating dissension and bad feeling against the fishing interests in general.

From the standpoint of the fisherman, there are instances where the canneries show utter disregard of fairness, illustrating pretty clearly at times the attitude toward resident labor. As an example, an incident at one town may be cited where, during the first large run of sockeyes, all the white fishermen were warned that there was little use of their fishing, for if they did the fish would be wasted, as they would not be bought by the cannery. This was quite an unfortunate situation, for these men, some of them with families, who live in Alaska, were compelled to sit idle and watch imported labor take their living away from them at the time of year when the greatest amount of money could be earned.

While I have looked at the situation from all angles and realize thoroughly that in some instances the fisherman is to blame because of his unjust demands and his general lack of reliability, I think that in cases where resident fishermen are available they should be given every opportunity to engage in this or any other part of the industry for which they are fitted, and thus be allowed to earn a livelihood. In other words, the resident fishermen should always have the preference over alien or imported fishermen. This applies also to the Indians and the Aleuts.



YAKUTAT INDIANS IN COSTUME FOR POTLATCH FESTIVAL. THEIR ENTIRE SEASON'S EARNINGS OF \$4,800 AT THE CANNERY WERE SPENT IN TWO DAYS AT THESE FESTIVITIES.



AKUTAN ALEUTS STANDING BEFORE A BARABARA OR SOD HUT.



ALEUT VILLAGE, WESTERN ALASKA, SHOWING OBSCURITY OF NATIVE BARABARAS OR SOD HOUSES.



INDIAN FISHING VILLAGE, SOUTHEASTERN ALASKA.



OLDEST CHILKOOT INDIAN FISHERMAN IN FRONT OF HIS FISHING CAMP ON CHILKOOT RIVER.



CHILKOOT RIVER. SHOWING PLATFORMS FROM WHICH INDIANS HOOK OR GAFF SALMON.

Alien and imported labor.—This class of labor causes much disturbance because of the opposition to it by people who live in Alaska throughout the year. On account of the scarcity of white and Indian and Aleut labor in many places where canneries are operated, imported labor is absolutely indispensable, and there is no just argument that can possibly be made to forbid the continuance of this practice. A prohibition of this sort would not only work a great hardship and injustice to a number of the canneries, but it would mean practically the closing of their business. Then again, the unreliability of the Indian and Aleut makes it necessary for a business concern to have assurance that there will be no possible chance for hindrance or curtailment of its operations during the short canning season. On the other hand, I personally investigated localities and cases where the alien and imported laborers were detrimental to the Indians, Aleuts, and white residents.

As a protection to fishermen living in Alaska, it appeals to me as wise and necessary to revise the law so that no aliens imported for inside labor at the canneries may engage lawfully in actual fishing operations. This would also forbid aliens from line fishing or trolling for commercial purposes, which, in view of a recent court decision, is now possible.

INDIANS AND ALEUTS.

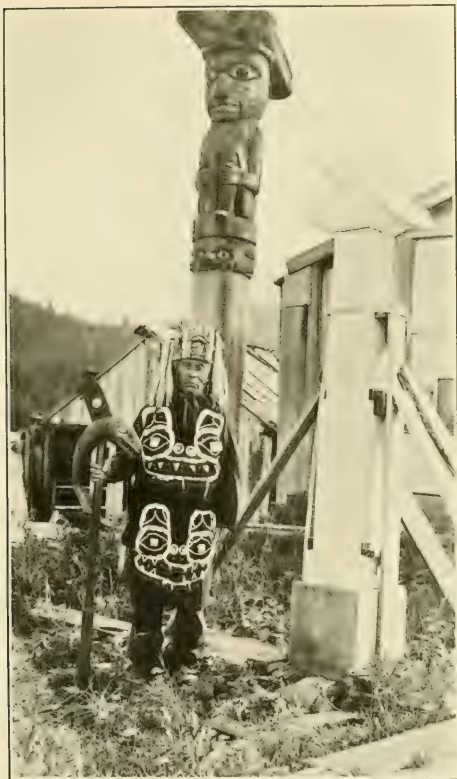
Nothing in Alaska interested me more or appealed to me more than the Indians and the Aleuts, from the fact that their lives, surrounded by conditions new and distasteful to them, are being made more unfortunate each day. The white man has come into their territory, in many cases infringing on their prior and just rights. The home of the Thlinket Indians is in southeastern Alaska, from Yakutat to Ketchikan, and, while their ancestors were no doubt like the Aleuts, to-day in looks, language, and habit they are vastly different. The Aleuts live on the islands in southwestern Alaska, along the coast of the Alaska Peninsula, and as far north as the Pribilof Islands and Bristol Bay.

Owing to the fact that for generations they have made an easy living with no one to molest them, they are to-day, as a class, independent, lazy, and unreliable. Their condition can be accounted for partly by their past environment. The white man has done little to encourage their uplift and is largely to blame for the demoralized condition of mind and body of the native to-day. Naturally, these people were physically and mentally strong, but the influences that have surrounded them for the past 50 years have lowered their standard, until in many cases and in many localities they are on a very low plane.

The saloon prevails wherever the white man settles, and has had more to do with the undoing and ruination of the Indian and the Aleut than all other causes put together; and where saloons are not to be found liquor reaches them in the guise of pay and bribes. The white man's lack of care and regard for the sanctity of the native's home is the crime of Alaska. In many sections the wife and daughters are dishonored, and any resistance from the husband and father or brother is overcome by threats and bribes and liquor, until even the men have all their best impulses and senses deadened and seem to be unmanned.

With all this unfortunate condition true, there are localities where a good influence has been felt. On one island in central Alaska a cannery is operated entirely by these natives (with the exception of the bookkeeper and the superintendent), and it was a pleasure to note the condition of the place and the generally gratifying appearance of the natives. This example showed me conclusively that with the right influences the Indian and the Aleut can be brought to a higher standard of efficiency, reliability, and honor. There are other canneries that encourage this native labor and are earnestly trying to help these unfortunate people. In southeastern Alaska the canneries have been of much benefit to the Indians. Their income has largely been derived from their work in connection with the fishing industry, and to-day some of them own their own fishing boats and gear.

At another cannery quite a different condition was noticeable. A large portion of the help was Indians and they made more or less trouble all the time. The true reason for this was hard to tell. No doubt they were not entirely to blame. About the time I visited this establishment there were many thousands of salmon lying on the floor, and concentrated effort was needed to take care of them at once. With this state of affairs evident, the superintendent was notified one morning of the absence of 11 of the Indian women who cleaned the fish, and found that they were going off in a party for four or five days' vacation. It took the greatest persuasion and even some bribing to keep these women in their places and prevent the loss of the fish.



CHIEF KA-SHAKES, OF THE THLINKET INDIANS,
WRANGELL.



INDIAN FISHERMEN IN DUGOUT CANOE, NEAR HAINES.



ALEUTS IN TWO-HATCH BIDARKAS AT UNALASKA.

In some localities I observed that the Indian was willing and anxious to earn the \$5 to \$8 a day often paid him during the fishing season; but his mind was filled with discontent by agitators, who not only demanded his money for the support of their unwise doctrines, but used their bad influences in suggesting to the men, who at heart wanted to work, that they were being treated unjustly by the white men, and pleaded with them not to work for the cannery men.

This season there were about 4,000 Indians and Aleuts employed in the canning and fishing industry of Alaska. This is about one-third of the total number of natives living on the coast of Alaska, or about one-eighth of the entire number in the whole Territory.

EDUCATION OF NATIVES.

I can not speak too highly of the work done by the Bureau of Education of the Interior Department. The men who have charge of this work in Alaska are to be commended. I had the opportunity to become well acquainted with some of those in charge, and with much of their work, which undoubtedly is along right lines. If the natives could all have a certain amount of education, not necessarily from books, they would become better citizens of this country, and their condition of mind and body would be much improved. It seems to me, however, that it is to matters of health and sanitation that attention should be directed primarily, at least at present, rather than to more academic phases.

The lack of money for this purpose is unfortunate, and the Government could well afford to appropriate more each year than the \$200,000 at present appropriated, which is insufficient.

POLLUTION.

Owing to the fact that Alaska is sparsely settled and the settlements are relatively small, the question of sanitation has not yet appealed with much force to the various communities. I was disappointed to find that in the majority of the towns in southeastern Alaska practically no attention was paid to cleanliness or to the presence of débris and offal and the effect upon the community. In one town I noticed two conspicuous signs:

WARNING! Any person or persons who shall throw, deposit or leave any garbage, rubbish or any other substance in or around his or her dwelling or premises under their control, which is calculated to or likely to or which may endanger the public health; or who shall refuse or neglect to remove the same, shall be deemed guilty of a misdemeanor and shall upon conviction thereof before the municipal magistrate be punished by a fine of not less than one dollar nor more than fifty dollars. By order of the City Council.

HELP!!! Help make ——— a clean and healthy city by observing the following "don'ts."

Don't spit on floors or sidewalks. To do so spreads disease.

Don't throw out your garbage. Burn it. Garbage breeds flies and rats, and flies and rats breed disease.

This is a step in the right direction, but it came to me as a matter for comment that a municipality should pass an ordinance making it a misdemeanor for residents to allow refuse or garbage to remain around their premises, yet not only sewage and other matter was permitted to run directly under the houses and be deposited within the town, but canneries were allowed to dump all their refuse underneath the docks, which really are part of the town. In fact, some of the towns are built in part on planking over the water. I spoke of this to a number of residents of the place and their comment to me was, "Well, we can not hurt the canneries; they dominate the town." Yet some poor fellow who was guilty of a lesser offense might be brought before a municipal magistrate and fined from \$1 to \$50. The effect of this wholesale dumping of refuse into the water is not only insanitary but criminal. At low tide a black muck is exposed, and during these hours the stench is sickening, and I know from actual observation that even the upper works of a vessel tied to one of these docks at low tide is in a few hours covered with a dark coating, a collection from the fumes rising from this mass. Climatic conditions alone save these towns from a scourge or an epidemic. With the increasing population and the congestion that is already showing itself in some sections, it seems that nothing short of an object lesson will teach the harmfulness of the existing conditions.

Another form of pollution is from the mills that deposit all their sawdust and refuse in the waters of Alaska. While this is a well-known injury to young fish and is a direct violation of the Territorial law which forbids the dumping of sawdust into the waters of the Territory, it is being done in some of the towns and under the very eyes of the local officials.

At every cannery in Alaska the refuse is dumped off or under the docks. The mass of decaying and decayed fish is both an eyesore and the cause of most unhealthful insanitary, and unpleasant conditions.



MAIN STREET OF SITKA, SHOWING TENTS WHERE WIVES OF INDIAN FISHERMEN SELL CURIOS



CHILKOOT INDIAN WOMAN MAKING BASKET.



ROAD HOUSE RUN BY NATIVES AT KLUCK-TOO, CHILKAT RIVER.



AKUTAN ALEUT MOTHER AND 8 CHILDREN IN FRONT OF BARABKI, OR SMALL TYPE OF SOD HUT. THE FATHER IS EMPLOYED AT A NEAR-BY WHALING STATION.



DRYING NATIVE GRASSES FOR BASKET WORK, ALEUTIAN ISLANDS. ALSO SHOWING SEA LION BLADDER USED FOR RETAINING FRESH WATER.



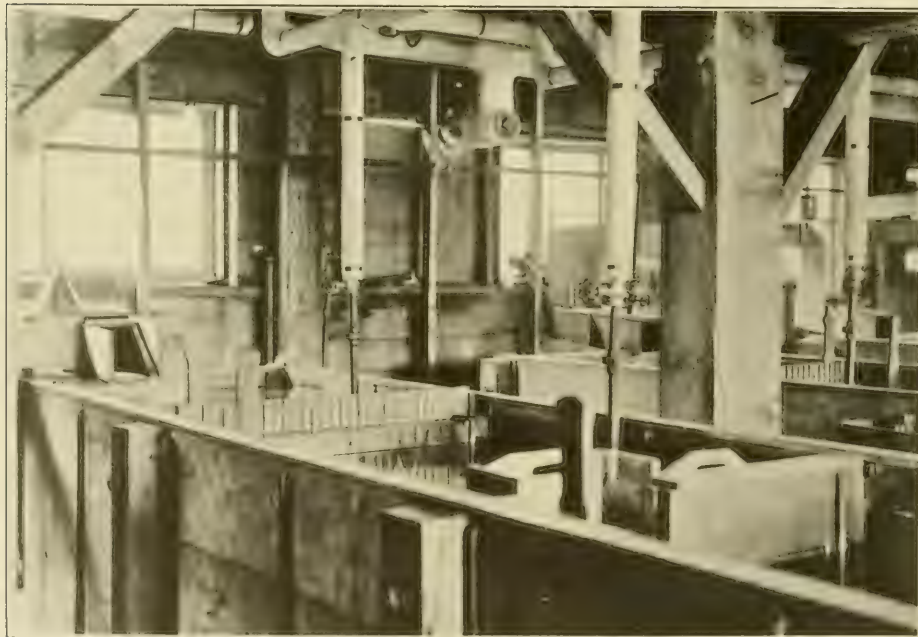
CHILKOOT INDIAN CHIEF AND WIFE



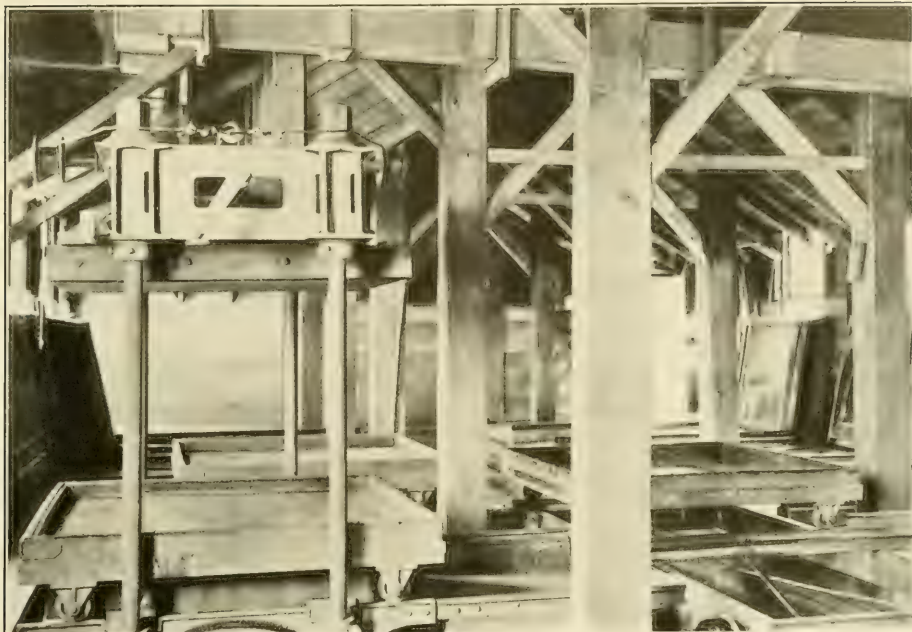
INDIAN FUNERAL ON CHILKOOT RIVER



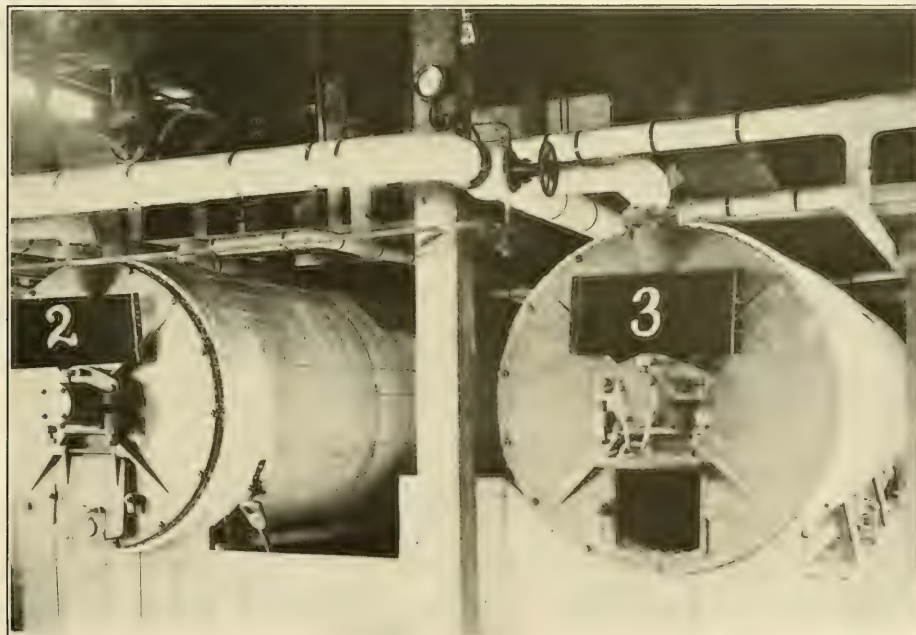
PLANT AT WARDS COVE FOR MANUFACTURE OF OIL AND FERTILIZER FROM CANNERY WASTE. OIL FILTERING TANKS ARE SHOWN AT RIGHT



OIL FILTERING TANKS AT WARDS COVE REDUCTION PLANT.



WARDS COVE REDUCTION PLANT. PRESS ROOM WHERE COOKED OFFAL IS SUBMITTED TO PRESSURE OF 8,000 POUNDS PER SQUARE INCH TO REMOVE LIQUIDS.



DISCHARGE END OF DRIERS AT WARDS COVE REDUCTION WORKS.

The canneries should take steps at once to either burn this offal or utilize it in making fertilizer and oil. This is one of the conditions that makes the surroundings at a cannery insanitary and creates an unwholesome atmosphere for the men and women who are employed there.

It is a good thing for southeastern Alaska that a plant for utilizing the fish-cannery waste has been established recently, and those interested in canneries should cooperate heartily with its promoters and assist them in every way to remove the offal from their canneries. The towns, too, should take some speedy and decisive action that will put an end to the practice of some canneries along this line which is injurious from every standpoint.

UTILIZATION OF CANNERY WASTE.

No enterprise yet launched in Alaska means more in certain ways to the Territory than that undertaken last spring at a plant at Wards Cove for the purpose of converting cannery waste into oil and fertilizer. In addition to the utilization of cannery waste, the plant will also use sharks and nonedible fishes. Operations were carried on for a period of about 60 days in the past season and the results were encouraging. Several vessels were employed in collecting cannery waste.

The owners of a number of canneries signed contracts disposing of such waste at very reasonable figures, extending over periods of from one to five years. Others, however, refused to sell the refuse, in spite of the fact that the oil and fertilizer concern offered a fair price and was willing to build receptacles for the stuff at the canneries and call for it. Inasmuch as the accumulation of this waste material at the canneries causes inconvenience as well as insanitary surroundings, it strikes me that every cannery should be glad to give away this offal that has hitherto been polluting the waters of Alaska.

Now that an opportunity has presented itself for relieving the settlements and towns of the filth that has surrounded them, it is hoped that in another year the managers of all places within reach, where fish are being utilized, will cooperate with this new enterprise and do everything they can to make it a success.

It is understood that the company operating the plant at Wards Cove is contemplating the erection of several more plants of a similar character in Alaska, two in southeast Alaska and one or more to the westward. I had thought seriously of recommending a plan for individual fertilizer plants at each cannery, but they would not be necessary if the waste were utilized elsewhere. The operation of a small fertilizer and oil reduction plant in connection with each cannery is much less likely to be productive of satisfactory results than the operation of a large establishment devoted wholly to this work and employing skilled and experienced operatives.

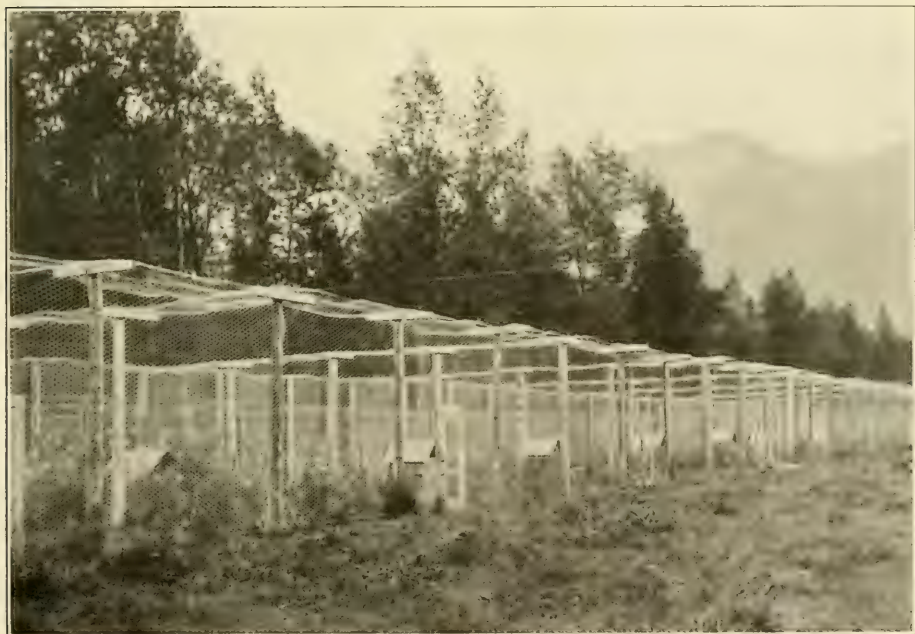
FUR-BEARING ANIMALS.

Alaska is the last frontier region of this country and much of it is so isolated and difficult of access that it is as yet largely unexplored by the white man; but the tendency is increasing each year to work back into this vast area and secure the valuable skins of the various fur-bearing animals. So far, this tendency has been confined mostly to those who spend their time trapping and hunting, killing everything and anything at any time of the year, regardless of any law or of how little value the fur may have at the time. This short-sightedness, and I may say wholesale killing, which has been conducted in some sections, is producing its results, and now it is necessary to reach back into less accessible places in order to keep up the supply of furs. The fact that Congress has made provision for but seven wardens to patrol, for the protection of fur-bearing animals, the nearly 600,000 square miles of Alaskan territory indicates that they have had almost no protection at all. It would take many times that number of wardens to secure adequate protection for them.

The present law makes it a misdemeanor to kill fur-bearing animals except during such open seasons as may be prescribed by the Secretary of Commerce. The law, however, forbids only the actual killing of those animals, and it does not enable the Department to enforce effectively prohibitions upon certain other acts which are readily recognized as being as detrimental to their conservation as the actual killing. If the fur-bearing animals of Alaska are to be preserved, there must be a law broad enough to cover every detail, so that there will be no possible chance for offenders to go free, as they do now under the existing imperfect act. And, furthermore, the Secretary of Commerce should have the right to make such regulations as he deems proper from time to time, based on the reports of men who understand the varying conditions, which are so radically different in various parts of the Territory.



GENERAL VIEW OF FOX RANCH NEAR CHILKAT LAKE.



INSIDE OF FOX RANCH, SHOWING ROW OF BREEDING PENS ON ONE SIDE.

CONTROL OF FUR-BEARING ANIMALS.

The question of the Department of Commerce retaining jurisdiction over the fur-bearing animals of Alaska through the Bureau of Fisheries has been given much thought and consideration. Until recently the system of protection for these animals in Alaska has been in a more or less confused condition. Through intelligent investigations and operations extending over a period of several years, this Department has worked out quite definite plans, and now, after its officials have acquired much valuable knowledge and experience at no little expense to the Government, there is talk of transferring jurisdiction over these animals to another department. I can not agree with such a step. If this is done, it will take many years for the practical knowledge that has been gathered in the Department of Commerce through the Bureau of Fisheries to be acquired by new people in charge; in other words, a new start will have to be made, which would mean much confusion during the time of readjustment.

Before I made my trip to Alaska, I was rather doubtful as to the desirability of such a change; but after seeing the actual conditions and studying the various important phases of the question on the ground, I formed the opinion, based on facts as I saw them, that it would be unwise and unprogressive to allow the control of the fur-bearing animals to pass from the Department of Commerce to another department of the Federal Government or to the Territory of Alaska. With the help that Congress can provide in the way of more wardens to look after the work, there is no apparent reason why the matter of protecting the Alaska fur-bearing animals will not be better attended to and even more advantageously handled if the authority is kept where it now is; and from an economical and business standpoint it will be better, as our wardens can assist with the fishing industry in summer and look after the fur-bearing animals in winter, thereby saving a double patrol system.

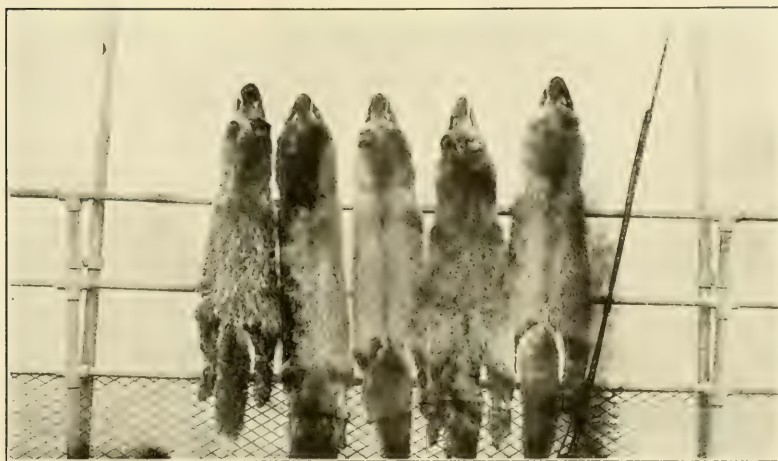
PROTECTIVE SEASONS.

The majority of fur-bearing animals in Alaska should be afforded protection during certain seasons. There are, however, at least three exceptions—certain bears, the wolf, and the wolverine. It seems very shortsighted to give protection to the bears other than the polar bears at any time of the year. Through the greater part of Alaska bears are very abundant and are shot regardless of seasons. To-day there is a law which prohibits in certain seasons the killing of the great *brown* bear of Kodiak Island, which is the single species of bear, and of fur-bearing animals, under the care of the Department of Agriculture. Because this law is misunderstood, all brown bears, regardless of species or shade of color, are included in this restriction. This confusion not only works a hardship on those who trap for a living, but is a serious hindrance to the enforcement of the laws and regulations applying to the bears in general. The brown bear is as clearly a fur-bearing animal as the other bears, and all species should come under the jurisdiction of the Department of Commerce. It is earnestly hoped that this inconsistency will be remedied so as to remove the state of embarrassment and confusion that now exists in Alaska among the trappers, merchants who deal in bear skins, Federal and Territorial wardens, and customhouse officials. There may come a time when there should be a close season on some bears in certain parts of the Territory in addition to that provided for the polar bears, but it is not now necessary, and is certainly unwise.

The wolves are the most destructive wild animals that roam the woods of the Territory. This especially applies to southeastern Alaska. They frequent many of the islands in packs and are ever hunting for food. The Department of Agriculture, through the Biological Survey, is now making an effort to protect the deer in southeastern Alaska, to make up for the years of wanton slaughter. This effort is admirable, but unless the wolf, which is increasing as a menace, is eliminated to some extent there will be no further use for prescribing protection to deer, as they are rapidly disappearing on many of the islands. I observed a number of instances where the wolves had killed deer, and in others I saw specimens of deer that were thin because of the ceaseless chasing they had had by those animals. It is a serious matter, and I would strongly recommend that Congress provide a bounty of \$5 on wolves in southeastern Alaska, to take effect at once. I consider them the greatest menace in this section to deer and game birds.

EFFECT OF EXISTING LAWS ON NATIVES.

The natives in different parts of Alaska that are affected by the laws prohibiting the killing of certain fur bearing animals feel that a great injustice has been done them and that they should be accorded certain privileges not now allowed. They are generally satisfied with the open and close season on the small



FIVE ISLAND SILVER GRAY FOXES.



PLAYFUL ANTICS OF A PAIR OF VALUABLE BLACK FOXES.

fur-bearing animals; but in coast towns and in the western part of Alaska, Bristol Bay, and in the waters around the Aleutian Islands Reservation they feel keenly the fact that they are forbidden to hunt sea otter and are restricted in respect to the taking of fur seals for their own livelihood. There are two or three instances that are worthy of being cited in this report.

The Sitka Indians feel keenly the injustice of the present seal law, and they appealed to me. Since prohibitions were placed upon their shooting fur seals, they felt they should have been reimbursed for the boats and guns they had bought just before and which are now practically of no value to them.

The Aleuts on Akutan Island are suffering because of laws that have been made, not through their fault, but on account of the white man's exploitation of the natural resources. These people for generations have made their living by hunting the sea lion, the walrus, the sea otter, and other fur-bearing animals. To-day the stricter laws that are in force have largely deprived them of their only trade and occupation.

A case in Bristol Bay deserves sympathy as well as thought. Last winter natives in this region killed three sea otters and took the pelts to a near-by town in order to sell them. This in itself indicates that they were absolutely innocent of any knowledge of wrongdoing. When they arrived, the United States commissioner, very fortunately for them, was absent, but there were enough people around town to frighten them badly by telling them that they had violated the law and would be thrown into jail. They returned to their homes immediately, tied rocks to these valuable skins, went out in the bay, and sank them. It is a pity that such laws are deemed necessary. It would seem far better if conditions had been such that these men could have been allowed to exchange these skins for food and clothing; and it is a question of much seriousness to me whether, strictly speaking, this kind of killing by these natives under the supervision of an agent of the Government would not be wise and commendable.

There was another instance. Several natives living on one of the Aleutian Islands killed a number of seals. These skins were brought into Unalaska for sale. The commercial agent refused them on account of their having bullet holes in them. They were later disposed of in some manner and taken to some ship that happened to be in or near the harbor.

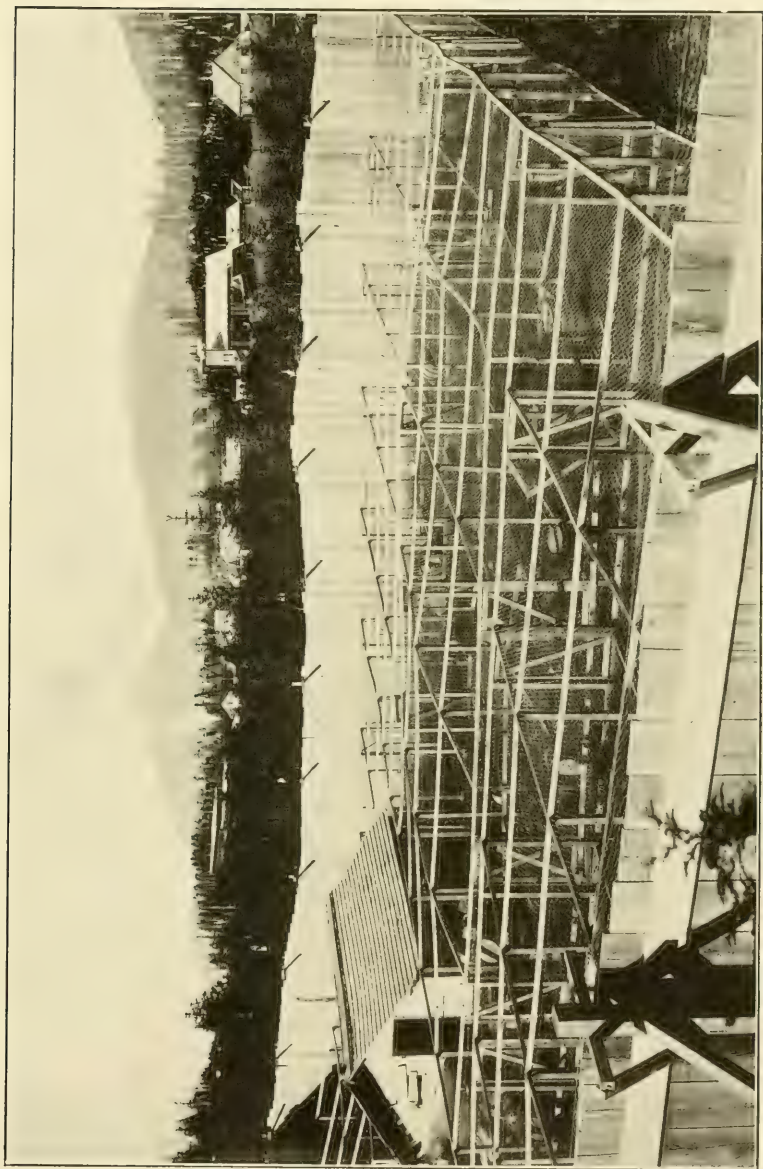
It strikes me most forcibly that the Aleuts and Indians have a certain just and prior right to the natural resources in the country that they inhabited before the advent of the white man, and surely the scarcity of sea otter and other animals is not due to them but to the greed of the newcomer. Something should be done under Government supervision to allow definite privileges to the Indians and Aleuts. They might be allowed to take a certain number of these animals which are necessary for their comfort and well-being, even though it is against the law for a white man to kill them. This question deserves the utmost thought: *Is it wise to make laws which take away from these natives their principal means of livelihood, until they have learned other work, or until other methods of earning their daily bread can be brought to them?* In other words, we have taken certain necessities from them and have not provided ample and proper substitutes.

PROPAGATION OF FUR-BEARING ANIMALS.

FOX FARMS.

A new industry in Alaska, the raising of fur-bearing animals in corrals or on island ranches, has created more than ordinary interest. Owing to the fact that few of the men who have engaged in this business have sufficient knowledge of the conditions necessary to raise foxes in captivity successfully, there have been many failures and few successes. Because live black or silver-gray foxes have brought exorbitant prices, men have been misled into thinking that all they had to do was to purchase a few foxes and soon begin to reap the benefits by receiving large sums for their sale.

The prices obtained by many who are carrying on the business in Canada and elsewhere on the continent do not indicate a healthy condition. In fact, the prices that are asked and actually received in many cases do not represent the real commercial value of these animals as a fox-farm business proposition. It is a good deal like a man who has a prize-winning dog; some wealthy person comes along and pays him \$5,000 for it because it has won some special prize at a celebrated show. Other people immediately think that dog raising is a profitable business, if they bring such enormous prices, and want to jump into it without further knowledge. With foxes as with other things, an unnatural condition like this only brings disaster and can not possibly work any good.



FOX CORRAL AT EYAK LAKE, NEAR CORDOVA. THESE PENS ARE TOO CONGESTED TO PERMIT THE SUCCESSFUL PROPAGATION OF FOXES

To undertake the business of fox ranching in Alaska a man must, in the first place, be industrious and willing to endure hardship. In the second place, he must study to some extent the habits of foxes and the kind of country or soil necessary for their welfare. And, third, he must have sufficient capital to buy his first installment of breeding stock, with ample capital in reserve for ordinary losses, and to provide against the fact that *it will be necessary to operate the farm for probably four years without any returns*. When he has done these things, the reasons seem remote why he should not succeed. Unfortunately, to date there are very few who have taken hold in the proper manner, yet their misfortune and reverses have enabled others to profit by their experience, and I look for better and more settled conditions relative to the propagation of fur-bearing animals in Alaska. Those who are now beginning realize that it is a business to be worked out practically and scientifically, and that haphazard methods will not suffice.

ISLAND FOX FARMS.

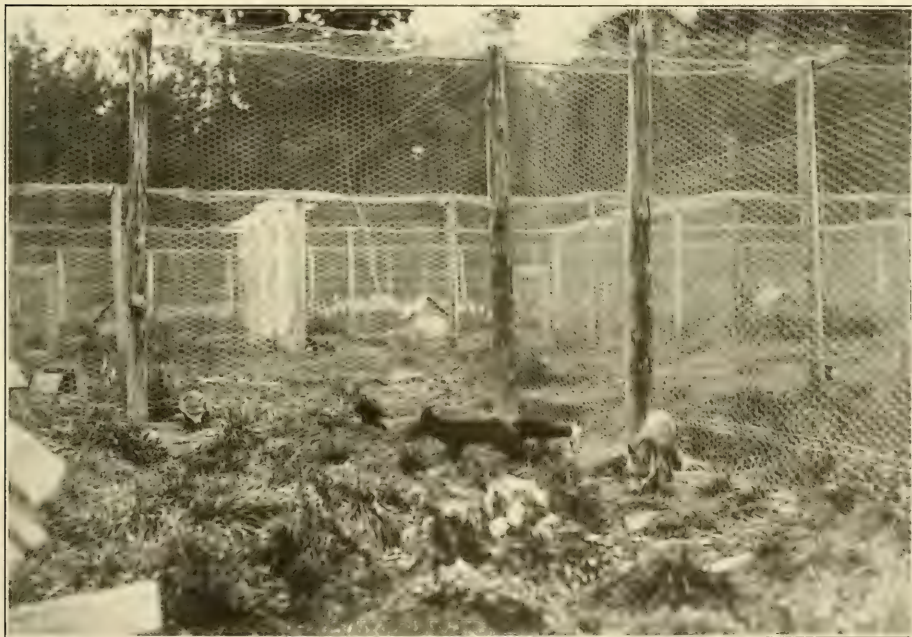
By Executive order dated February 2, 1904, authority to lease certain islands in central and western Alaska for the purpose of fox raising was transferred from the Secretary of the Treasury to the Secretary of Commerce. On paper the minimum lease price of \$200 per annum for these islands seemed fair, and without any knowledge of what these islands were, assuming that they were adapted to such purposes, the offer made by the Government seemed to be an inducement that should be readily taken up. But as time went on there were only four of them that were actually leased for from \$200 to \$250 per annum, the leases to run five years. This seemed strange to me, but since my visit to a number of the islands and after looking into other conditions relative to fox farming the atmosphere has cleared and I understand a great many things that I did not know before. Two hundred dollars per annum does not seem much to people when they hear of foxes being sold for from \$5,000 to \$10,000 a pair; but as I have already stated, these unnatural and artificial prices can not possibly apply to the islands situated in the Pacific Ocean off the coast of Alaska. The quality of the fur from these islands is not as good as that from inland areas farther north. The man who goes out to that isolated country to carry on this work alone has a hard row to hoe. With a capital of, say, \$3,000, he must lay aside \$800 to pay for his lease for the first four years, as he must not expect any return from his initial stock before the end of that time. Then he has to buy his foxes for a starter, and supposing he bought half a dozen blue foxes, the cost would be in the neighborhood of \$1,200. There is \$2,000 gone already. And the balance will be well utilized in feeding himself and his stock and in paying other expenses.

In figuring this, I have not allowed anything for corrals, for in most cases on these islands the foxes do better to run at large; but it must be understood that on many of the islands in western Alaska, including some of those offered by the Government for leasing, there is not enough natural food to take care of what would ordinarily constitute a fair number of foxes for such an area. Therefore, a man must provide food at more or less cost the year round. If he does his own work he has no income for the first four years. If he is fortunate enough to have a good position and still more fortunate in securing a reliable man to look after things for these four years, the chances are that matters will be in pretty good shape at the expiration of his lease. Then what is going to happen? Some other man may outbid him, and his time, labor, and buildings are all gone.

The Government, if opening a reservation in one of our Western States, would permit the land to be acquired free, under certain restrictions; and I can not understand just why any man who is reliable and industrious and willing to go out and help to develop that far-away frontier country of Alaska should not be encouraged by the same privileges instead of being hampered and disheartened at the start. If it seems wise to lease these islands for \$200 per annum, or thereabouts, I should certainly be in favor of arranging it so that after the first five years a man would either receive a rebate of perhaps half of the leasing price paid by him when he has proved his good faith; or I would suggest a sliding scale for leasing these islands at \$50, for example, for the first five years, and then a stationary price for the next ten years with the privilege of renewal, if desired, for another ten years, and so on. Under the present leasing system, at the end of five years a man may lose the island where his money and efforts were spent during the life of the lease. I would suggest that the men who have already leased these islands should be advised at once that the Government extends the right to the leasing of their islands to ten years, with the privilege of renewal for ten more. This would be highly satisfactory, and would create confidence and satisfaction which does not exist to-day among those who have leased islands or are contemplating such a step.



A PAIR OF CROSS FOXES AT RANCH NEAR CHILKAT LAKE. NOTE OPEN CONSTRUCTION OF UPPER PART OF KENNEL TO GIVE GOOD CIRCULATION OF AIR.



INTERIOR OF A CORRAL, SHOWING BLACK AND CROSS FOXES

The fact that these comparatively few islands have not been readily taken up by men who are anxious to go into the fox business has shown me conclusively that something is wrong. I attribute it to three things—first, the price is too high for the average poor man to pay; second, the lease is for too short a time; and third, a number of the islands are not adapted to fox raising.

There is another phase of the leasing system that I have looked into which works a hardship and is apparently unjust as shown by the following example: Mr. J. C. Smith in 1907 moved to Simeonof Island, one of the extreme outer islands of the Shumagin Group. He was a poor man and had to work hard, occupying himself in tilling the soil and in general farming. He has raised a large family—nine children, I understand—and it has been difficult for him to get along. Then after 17 years of hard work the Government interfered and this island on which he lives and to which he certainly has some prior right was offered to anyone in the country who wanted to lease it for fox-farming purposes. The result was that, to protect what little he had, Mr. Smith was forced to bid for the island, running the risk of losing it, and then begin raising foxes, whether he wanted to or not. For the next five years he must pay a total rent of \$1,250, and at the end of that time again run the risk of losing his home. As already indicated, I think that, as a pioneer and one who has opened up a section of a vast territory, he deserves a present of the island instead of being saddled with a rental of \$250 per annum.

The present situation does not seem right or just. The poor man without means is the one who should be encouraged to take up these islands and should be assisted in undertaking this work; he should have the support of the Government, and not be handicapped or held back by having some hardship imposed upon him.

There are a few men engaged in fox farming who are doing it along proper lines, understanding their business and making a success of it. The following instances are cited from among those I know:

Samuel Applegate, who has a fox ranch on Samalga Island, has made a success of raising foxes, but, as he admits himself, he was most fortunate in securing an island that was specially adapted to that sort of work, and so he has succeeded. He has made some money from the sale of blue fox pelts in the last few years.

Andrew Grosvold, who lives on Popof Island, is another man who is successful. He is far-sighted and realizes all the peculiarities of these animals. Mr. Grosvold has a thriving trader's post at Sand Point, on Popof Island, and reliable men to look after his fox farms. He is able to furnish the money to conduct operations properly until they are on a paying basis. Therein lies one of the secrets of his success. At the present time he controls six islands and has about the following number of foxes on each:

	Blue foxes.
Caton Island, of the Sannak Group.....	500
Bird Island, of the Shumagin Group.....	100
Chernabura Island, of the Shumagin Group.....	75
Chernabura Islet, of the Sandman Reefs.....	30
Big Goose Island, of the Shumagin Group.....	20
Little Koniuji Island, of the Shumagin Group. (Number uncertain as he has only recently leased this island.)	

James York, on Sumdum Island, is an industrious, hard-working man who 14 years ago started with 20 pairs of blue foxes; to-day he has between 70 and 100 blue foxes. He feels that the stock he owns is the same as a man's cattle and that he should have freedom in disposing of them when the opportunity offers, without communicating with Washington each time. The fact that he has settled and made use of this otherwise useless island should give him a right that no other man should molest.

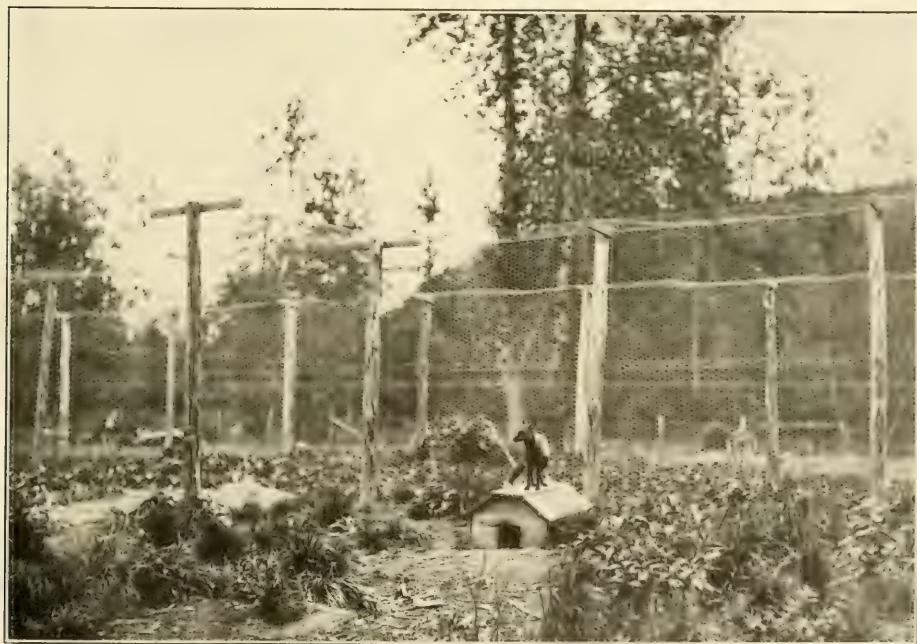
INTENSIVE (CORRAL) FUR-FARMING.

The men just referred to are raising foxes on islands. On the mainland a different method is in vogue, namely, the confinement of the animals in corrals constructed especially for this purpose. I noticed in my travels a number of permanent structures built for the purpose of raising foxes, mink, and marten, but in only two cases did I see any evidences of success, and in most cases those engaged had become thoroughly discouraged.

In the Chilkat River region I had the pleasure of seeing what was possibly the most ideally situated corral for foxes of any in Alaska. The owners, T. D. Lahy and C. M. Handley, know their business. They are both hard workers, and understand thoroughly the habits of a fox. They selected their site with a view to finding a situation where the soil was agreeable and best for the fox, and where a second



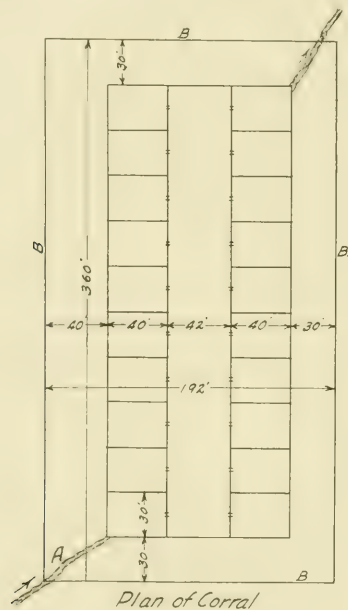
CORRAL FOX FARM, SHOWING A YOUNG AND VIGOROUS PAIR OF RED FOXES.



PEN IN FOX CORRAL SHOWING A BLACK FOX, THE MOST VALUABLE AND HIGHLY PRIZED VARIETY OF FOX.

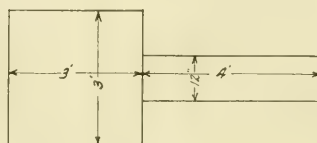
essential, a supply of good running water, was available from one of the watersheds of Chilkat Lake. A fox delights in scratching and digging, and if the dirt is not soft and pliable but is filled with rocks and stones his feet become sore, which sooner or later will result in his death.

The corrals were built with rare judgment—large, each one containing a comfortable house of two stories, the lower part compact and tight, and the upper part open at both ends, where the foxes might lie in good weather and sleep with plenty of air and sun. The yards contain plenty of green grass, which is essential to their welfare, and furthermore the running water that I referred to passes through the wire of each separate corral. The foxes digging around the sides of the pens create a natural basin for the water, in which they like to bathe. When necessary the supply of water can be diverted.

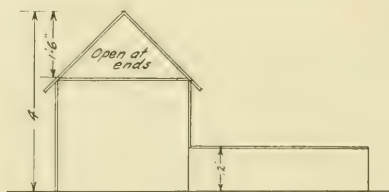
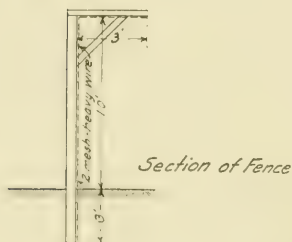


FOX CORRAL

Stream of water from mountain enters corral at A and circulates through each pen, following fences. Outside fence B is an additional precaution against escape of foxes and also prevents them from being frightened.



Sleeping House



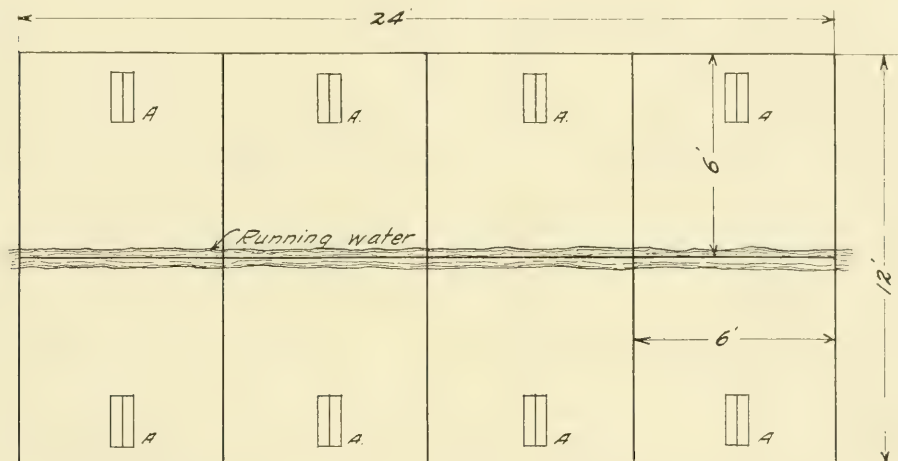
Plan of fox-rearing corral.

There are in these corrals black foxes, cross foxes, and some reds. One of the things that impressed me as much as anything I saw in connection with this ideal outfit was the fact that these foxes were nearly all so tame that they would come up and take grass out of one's hand. This was another indication of the way in which these men understand their business, for at other places I had seen the foxes were so wild that they nearly killed themselves in endeavoring to hide from those who were trying to look after them, something that certainly is detrimental to the success of a fox farm.

During the summer these foxes are fed once a day on smoked salmon or other fish. Bear meat is also occasionally used, but no salt food. In winter time frozen fish is fed to them, and in so doing great care

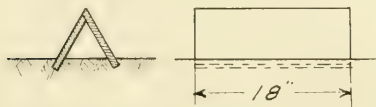
is exercised that no blood is allowed to remain on the fish, as this is injurious to the foxes. Among the necessities for keeping foxes in good condition are bones, feathers, green grass, plenty of sunlight, and more or less wind. I was fortunate enough to get good photographs of this ideal corral fox farm.

There was another fur ranch that impressed me favorably, which, although small, was well conducted. It is owned by Joe Voelke and Ben Wizamas. These men have constructed their corrals much on the line of Lahey and Handley's. It is located on Chilkat River at 18 Mile Post. In addition to the fox corral, they have constructed one for mink raising, and this is the only such corral that gave evidence of study and practicability. It was built along lines that would insure the protection of these animals and their breeding. Each pen was provided with running water.



MINK CORRAL

Detail of Houses "A"



Plan of corral for propagation of mink.

ILLEGAL FOX FARMING.

Unfortunately some men are getting licenses with the intention and sole purpose of deceiving the Government and defeating the spirit of the law. It must be understood that the regulations of the Department allow only ranch-bred foxes to be shipped out of the Territory of Alaska, on permits issued by the Secretary of Commerce and affidavits made by the shipper. No wild foxes, or foxes that *have not* been born on licensed fox farms, may be shipped out of the Territory. Now, the prevailing manner in which these unscrupulous, so-called fox farmers do their unlawful work is this: They buy from the natives throughout the region in which they operate live foxes of all kinds and sizes that have been trapped during the year, and perhaps they also engage in trapping themselves. Possibly they have already applied to the Government for a license to conduct a fox farm, and when they think they have enough foxes for a small shipment to Canada or the United States they make application to Washington, receive their permits, make affidavit that they have ranch-bred foxes, and send them out of Alaska, when, as a matter of fact,

the foxes should not have been caught, much less shipped. Their work is carried on in some instances by clever manipulators and they have a vast territory over which to work, making their operations at times comparatively easy. Of course, vigilance is being used to detect these violations and deceptions, but it is a difficult matter with the meager personnel we have for the work.

A number of illegal transactions are in my mind. One is of foxes that were shipped down from interior points in Alaska to Ketchikan. They were landed there and soon lost sight of. Later it was found that these foxes were loaded at night below the town on some power boat and taken into Prince Rupert and thence shipped to eastern points in Canada. This is only one of the conditions difficult to handle, and only the most drastic laws and an increase in the number of wardens will make it possible to correct this evil, or at least reduce it to a minimum.

Another case is of a man who entered the business on a remote part of one of the larger western islands and then set about trapping and collecting foxes. When he had enough he deliberately sold out, delivering them to a fictitious fox farmer, who had secured a permit to ship a number of ranch-bred foxes out of Alaska. This man with a permit deliberately shipped these illegally trapped wild foxes as ranch-bred stock. I happened to see some of these foxes which were afterwards shipped to the fox farmer for export, and the man in charge of these isolated corrals informed me with great excitement that he was not going to ship them, although I had not then asked him what was going to be done with them. I am glad to say that the officials of the Bureau of Fisheries have pretty well ferreted out and located these unscrupulous and lawbreaking men who have been working together more or less, and it is hoped that their operations will cease, as everything possible is being done to inspect all their shipments.

To assist in preventing violations of the law some system of branding all foxes on legitimate fox ranches seems necessary and at the same time quite practicable. If every fox shipped out of Alaska bore an official brand of the United States Government, it would tend to stop the attempts at illegal shipping and thereby help materially to bring about a better state of affairs in Alaska. If the Government is going to protect and keep the foxes in the Territory so they will be of benefit to residents, and encourage real fox farming, the law must be enforced thoroughly, or it is of absolutely no use. *It should either be done thoroughly or not done at all.*

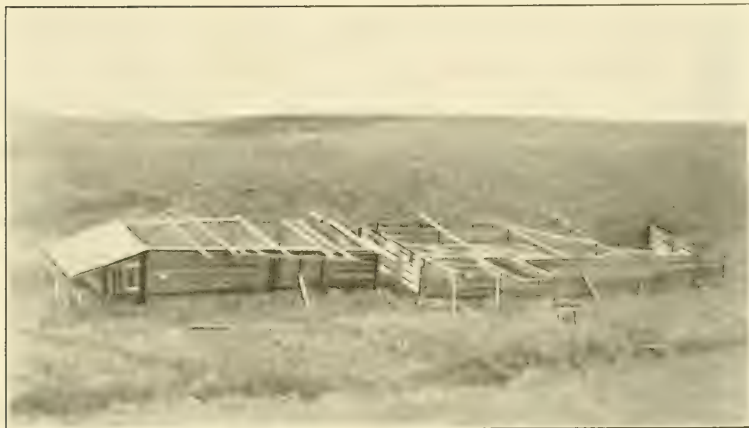
ALEUTIAN ISLANDS RESERVATION.

In the regulations for the administration of the Aleutian Reservation in Alaska, regulation No. 1 is as follows:

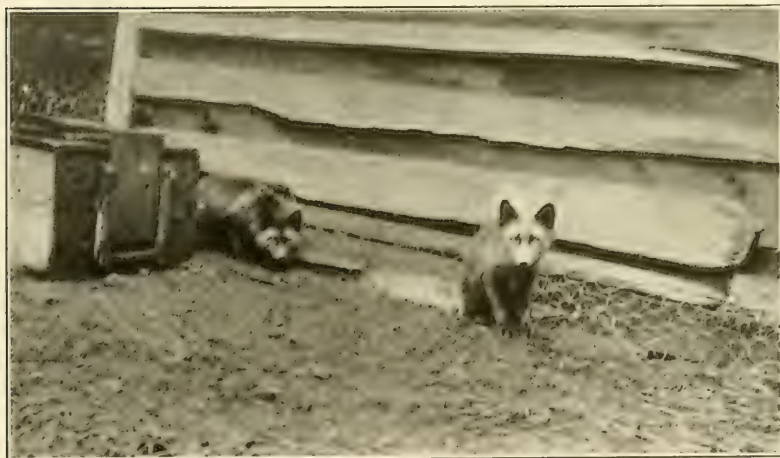
In compliance with existing laws and to carry out the objects of the Executive order establishing the reservation, all matters relating to wild birds and game, and the propagation of reindeer and fur-bearing animals will be under the immediate jurisdiction of the Department of Agriculture; all matters pertaining specifically to the fisheries and all aquatic life, and to the killing of fur-bearing animals, will be under the immediate jurisdiction of the Department of Commerce; and all matters other than those specifically mentioned above will be under the joint jurisdiction of the Departments of Agriculture and Commerce.

Can anybody conceive of a more complicated and interlocking division of authority than this case? The red tape, the loss of time, and the misunderstanding resulting and accumulating from just this sort of thing is appalling. When it is considered that in this island reservation of 1,000 miles in length there are only two points where a steamer touches at stated intervals during the year, no worse division of authority could have been made. While I was on the reservation last summer many natives who expressed a strong desire to engage in fox farming came to see me. This desire had been partly inspired by the superintendent of schools in the district, who had recommended the business as a legitimate occupation. I investigated thoroughly a great many conditions and found there was necessity for encouraging these native men to take up this new industry. I realized then for the first time the confusion and misunderstanding that had arisen on account of the division of authority as set forth in the regulations in the Executive order.

The situation was this: I could recommend to the Secretary of Commerce that a native be allowed to kill half a dozen foxes in order to sell their pelts, but no authority is given the Secretary of Commerce to permit a native to take six live foxes in order that he might engage in an enterprise for which the reservation should have been in part created. I did the next best thing. I wired the Biological Survey urging that a permit be granted allowing a native to take a number of foxes from one of the western islands and bring them to his home near Unalaska, so that he might have some occupation and an opportunity to support himself and his family. After some weeks the applicant received permission by mail, too late in



A MAKESHIFT FOX RANCH OF THE TYPE WHICH SHOULD BE DISCOURAGED OR EVEN PROHIBITED ENTIRELY, AS THE PENS ARE TOO SMALL FOR BREEDING PURPOSES.



SILVER GRAY FOXES CONFINED FOR ALLEGED BREEDING PURPOSES, BUT THE LIMITED SPACE MAKES SUCCESSFUL BREEDING IMPOSSIBLE, AND LEADS TO THE SUSPICION THAT WILD FOXES ARE BEING HELD FRAUDULENTLY.

the season to get his foxes because there was no available means for transporting them, and as the permit expires March 1, 1915, it is useless to him now.

If the Department of Commerce is to have jurisdiction over all fur-bearing animals in Alaska, with the exception of the Aleutian Islands Reservation, and if there the authority is to be divided, then I would recommend that the Executive order establishing it be rescinded.

Few people, unless personally acquainted with the region, have any idea of how little the natives really have to live on and to do with. Fishing and a little trapping are practically all that is afforded as a means of livelihood. It is natural to assume that the United States Government will make regulations to help these people, but so far as I have observed what it has offered on this reservation has proved in a large measure injurious. I thoroughly believe that if a native on any island desires to establish a fox farm and asks the privilege of trapping wild stock from any other island with which to stock his farm (especially when the island on which he lives is devoid of wild stock, as is the case on many islands) he should be allowed to do so, and furthermore he should be advised and encouraged in every possible manner.

One native came to me and suggested going into the muskrat business, asking if a half dozen pairs of muskrats could be shipped him from Kenai Peninsula. I wired this request to the Secretary of Commerce and in a few days the native received his permit by wire. The muskrats were shipped out there, and he now has an occupation which will no doubt mean an income to him and which is a step toward self-respect and independence.

The third article of the regulations provides that residents of the reservation desiring to engage in commercial fishing must first secure a permit to do so. The enforcement of this regulation is left to the Department of Commerce. Two natives came in from one of the extreme western islands (some 700 miles) to talk over the situation and to tell me their woes. They said they understood that the United States Government had made a regulation which forbade them to put up a few barrels of fish each year for disposal to sailing vessels that might stop at their island in the course of the year. They had just heard of the matter and wanted to know if they would be arrested if they should sell some fish. As this provision of the regulations now reads these natives and all others residing on the reservation, whether they live in Unalaska or 800 miles from there, with no possible way of reaching a post office except by means of the Revenue-Cutter Service, must secure from Washington a permit if they wish to sell even a barrel of fish. The chances are that they would get their permit the following year, as it would take, with the uncertain mail facilities in that section, perhaps a month for a letter to go from Attu Island to Unalaska and perhaps another month to go from Unalaska to Washington, and by the time the answer reached Unalaska there would probably be no steamers back to where the sender lives until the following spring.

The granting of permits to nonresidents to carry on fishing operations within the reservation should be done with care, and the first question should be what benefit the resident Aleut will derive from the granting of such privileges. Care should be exercised to protect the interests of these natives, and no permission should be given to anyone to carry on any phase of the fishery industry within the reservation without providing that all work pertaining to the same shall be done by them.

NEED OF A WARDEN.

A fisheries warden should be assigned to this reservation, with headquarters at Unalaska. He should be empowered to take official action upon all minor and routine matters pertaining to the administration of the reservation. Any rational plan for accomplishing the objects for which the reservation was established must include an arrangement of this kind. *An adjustment of this Executive order is imperative.*

PRIBILOF ISLANDS.

There is probably no part of Alaska concerning which more interest is manifested than the Pribilof Islands, in Bering Sea. The fact that they are the breeding ground of the largest rookeries of fur seals in the world makes them not only of great interest but a valuable asset to the United States Government.

When leaving Washington my intentions were to visit the Pribilofs, to look carefully into the administrative work of the islands and the condition of the natives, to study the fox herds, but to give attention to the seal herds only in a general way, inasmuch as the Department had appointed three special investigators to make a comprehensive study of those herds, including the taking of a census of the seals. While at Seward I received instructions to proceed at once to those islands to investigate irregularities in regard



ST. PAUL VILLAGE, PRIBILOF ISLANDS.



AUXENIA STEPETIN, AGE ABOUT 75, THE OLDEST ALEUT ON THE PRIBILOF ISLANDS.



FEDOSIE SEDICK, AGE ABOUT 70, OLDEST MALE ALEUT ON PRIBILOF ISLANDS.

to the conduct of certain Government officials. I therefore temporarily abandoned my other investigations and proceeded at once to St. Paul Island, arriving on July 10.

An investigation was made of charges against the agent and caretaker, and the storekeeper on St. Paul Island, and against the agent and caretaker on St. George Island. Nothing was left undone to bring about a fair and full hearing, and testimony of all the white employees on both islands, as well as of a large number of natives, was taken and the investigation was sweeping and impartial. It showed beyond a question of doubt that a deplorable condition has existed on these islands for years, and resulted in the dismissal from the service of both men on St. Paul Island. All Government officials who have allowed the morals of the islands to be disturbed have violated their oath of office and are guilty of gross misconduct if not of criminal negligence.

NATIVES.

In order to understand the reasons for the conditions on the islands it is necessary to view the matter from a very broad standpoint. The native inhabitants of the islands are undeniably wards of the Government. They are on a Government reservation, receiving from the Government at no cost to themselves a certain amount of supplies and rations, their schooling, and medical aid. Furthermore, viewing them from a business standpoint, they are of valuable assistance to the Government in carrying on the seal and fox operations; so it strikes me forcibly that while from a legal standpoint they may not be considered strictly as wards, yet looking at the situation from every angle, the Government has a grave responsibility in their general welfare, and they and their homes should be protected. On the other hand, the Government has been clearly remiss in allowing the practical and business side of these islands to be neglected. The villages in which the natives reside, their houses and other buildings which they find it necessary to use, have not received adequate attention. The facilities for obtaining fresh water for domestic purposes on both islands are so bad that the natives to-day have not a sufficient supply to assure even ordinary cleanliness. This fact alone is the greatest argument in favor of a perfected water system.

The general sanitary condition of the villages has been neglected. Instead of maintaining modern settlements the Government has been quite satisfied with the opposite, and the result is that many of the moral and business questions of the islands have been sadly overlooked. The people are lacking in intelligence and morality, and some of the white men sent there, who should have guided them along proper lines of living, have set bad examples. There is a generally demoralized and bad atmosphere among the natives, both in their talk and actions. It was told to me by one of those who had been entrusted with the care of the natives that it was as common for them to use obscene and indecent language as it is for us to talk about the weather. This is the keynote of the whole situation. It was the duty of the Government employees who have been sent there in the past to protect and uplift these people, and it was naturally and properly expected that their examples and suggestions would improve their minds and lives instead of demoralizing them. In other words, the natives on the islands would reflect exactly the atmosphere created by the talk and actions of the United States employees.

NATIVES' HOUSES.

There has been little assistance given the natives in their homes in respect to matters pertaining to sanitation. In respect to their dwellings generally there is much to be said. The houses in many instances are old and never have been either repaired or remodeled. Many of them are far too small, with the result that in some cases mothers, fathers, and children sleep, eat, and live in one ill-ventilated room. All this is more or less responsible for the bad physical and moral condition of the occupants. A thorough canvass of all these buildings should be made at once, some torn down, and others enlarged and repaired without delay. Some of the outhouses are disgraceful. In many instances these should be burned and replaced. Others should be repaired and properly fitted.

NATIVE BEER AND LIQUORS.

The fact that the natives have been allowed to make their native beer—"quass," or "sour dough"—has proved a serious menace to the morals and welfare of the community. In addition to this they have received liquor from some of those in whose safe-keeping and protection they were supposed to be placed. The whisky and wine has had a further demoralizing effect. This situation, while not entirely changed,



NATIVE METHOD OF DRYING SEAL MEAT, PRIBILOF ISLANDS.



ST. GEORGE VILLAGE, PRIBILOF ISLANDS.

has improved. Not only has the Department absolutely forbidden the making of "quass" on the islands, but has also forbidden the giving of intoxicants to the natives. I am in favor of permitting the limited use of alcohol for medicinal purposes, but all such material sent to the islands either for medicinal or scientific purposes should at all times be kept in the personal charge of the chief agents of the respective islands. The physicians or other authorized persons who may need supplies of this kind for official use should apply to the chief agent for the same, who would furnish the quantity needed, receive a receipt, and make a record of its disbursement in the log book of the island. Public drinking should be absolutely prohibited.

SCHOOLS.

The schools and teachers furnished for the natives have not been encouraged as they should be, owing to a certain prejudice that exists and to influences that have been brought to bear on the natives. This condition we also hope has been changed for the better—not temporarily, but permanently—and the natives have been made to realize as they never have before the necessity for learning English. The practice of sending the older pupils to the Indian school at Chemawa, Oreg., is splendid, and should be encouraged at every opportunity. The education of the growing generation will mean much toward solving some of the problems that now beset the Department.

WAGES, SUPPLIES, AND RATIONS.

The question of payment for natives' services and the matter of how much and what supplies and rations should be furnished to them by the Government is a most important one. The conditions in the past, brought about by certain circumstances (some beyond the control of the Government), have made considerable confusion and dissatisfaction. We want to help these men and women to be more self-reliant and responsible; therefore some systematic and tangible plan must be worked out and adhered to which will make them realize that there is permanency and stability to the system on which they depend for their livelihood. Years ago, when the leasing companies were carrying on commercial killing of seals the natives were paid so much per skin. In other words, for every seal they killed and skinned they received a stipulated amount. Along with the reduction in the number of seals killed, conditions relative to their pay and supplies or rations had to be adjusted. The inaccessibility of the islands and the misunderstandings resulting from very vague reports to Washington as to the true conditions have produced much discomfort on both sides. Until commercial killing is resumed it is no doubt a fact that the Government must to some extent continue to furnish food and clothing without cost to the natives. But the matter presents itself very clearly to me that they should understand what they are to receive pay for and on what basis. I believe it is as necessary to encourage these Aleuts to better work as it is to encourage a mechanic in the city; therefore, those that are skilled should receive more per hour than the younger or unskilled ones who do not understand any valuable or special line of work. I feel that the natives should be paid hereafter for *all* their work and in return they should buy *all* their supplies and rations from the Government. When commercial killing is resumed this suggestion can be carried out to the letter; but until the time arrives when there will be enough work to assure their earning a livelihood a certain amount must be given them by the Government. I think the inauguration of such a system will prove very advantageous and place matters on a better business basis, and be satisfactory to every one concerned. The old system now in vogue of charging the natives $33\frac{1}{3}$ per cent advance on all supplies and rations purchased by them is wrong and should be abandoned.

To-day a number of the men have specific duties the year round, such as attending the horses, cows, reindeer, boats, etc. These men are much underpaid. For example, the man on St. Paul Island who attends to the horses and cows, and who works long hours, receives \$15 per month; the natives who attend to the boats and launches are worth a higher wage than \$5 per month; and likewise the reindeer herders, who in winter sometimes spend days looking after these herds and seeing that they are all right, should receive more than the \$2.50 per month apiece. Not only are the wages too small for this steady and stipulated work, but where the just grievance comes is in the fact that while these men are earning such meager salaries per month other men on the islands are doing work at 25 cents an hour, earning more in the aggregate than these men get for specific duties which are likely to preclude their taking part in the general work.



NATIVE BARABARA AND ALEUT BOY, ST. PAUL ISLAND.



TWO ALEUT BOYS ON ST. PAUL ISLAND.



FUR SEAL BULL AND HAREM, BRIBILOF ISLANDS.

The question of the kind of supplies and rations for the natives is important. In the past there has been a tendency to ship to these islands material, both in the way of clothing and food, that was impracticable and unsuitable. In the future this practice should be discontinued, and a sufficient amount of proper clothing and food sent. The fact that they have plenty of seal meat must not mislead or give the impression to those who do not understand conditions that this food will answer all their needs. It does not and will not suffice alone; variety is just as essential to their welfare and health as it is to the people living in the States.

OCCUPATIONS.

The matter of keeping the native men, women, and children busy is a perplexing problem. At times of the year there is comparatively little work to be done. Some of the men are more industrious than others, and spend their time making different kinds of artistic trinkets and souvenirs from walrus ivory, the women likewise make souvenirs out of sea-lion gut and throat; and even the children help with both kinds of work; but in the past this work has not received the slightest encouragement. Furthermore, there has been no market for these goods except as men from Government vessels happened to land. The Government should carefully and systematically encourage all this kind of work, and should feel it incumbent to create not only an outside market for these products but should see to it that raw material is provided. The caretaker or superintendent on the islands should be instructed to notify the natives that the Government will furnish the working material at cost and take care of their finished articles, selling them and making a return to the makers. Many of these women can make beautiful and valuable baskets similar to those much sought after from the various islands of the Aleutian group, but unfortunately the same grass that grows on those islands is not found on the Pribilofs. I was interested especially in this feature and inquired while on the Aleutian Reservation if it were possible to get this grass and send it to the Pribilofs. I found it could be done. This is a matter that should be taken up early next spring with the idea of sending a supply of the grass during the summer.

OFFICIAL RECORDS.

I was gratified to find the official record books in the office and in the store in very good condition on both islands. While some of the regulations pertaining to the administration of affairs on the islands were not the best, the conditions resulting were generally satisfactory; and where they lacked or needed adjustment they were corrected, and the results have shown improvement.

NEW OFFICES AND SALARIES.

The most important factor in the future welfare of the islands is having *proper provisions made for responsible Government officials*. To-day they are underpaid and have more or less hardship and humiliation to endure. Instead, the Government should offer inducements to men of education, integrity, and ability, making it an incentive and an honor to go there. The office of agent and caretaker should be abolished and in its stead a superintendent at a salary of \$3,000 per annum placed on each island. The office of storekeeper should be abolished and an office of assistant superintendent at a salary of \$2,000 per annum created for each island. It is believed that the affairs of the islands can be conducted better by having individual superintendents for each.

From the closing of navigation in the fall of each year until the opening in the following spring these islands are cut off from communication with the rest of the world, except through the radio service, and this period is a long and trying one for the Government employees stationed there. But with the appointment of these officers, one might be spared during certain months of each year. This would permit each in turn to secure a needed change, and by having him report at Washington the Department would be better able to keep in close touch with conditions on the islands.

The fact that at the present time there is no storekeeper on St. George Island is unfortunate. Even though there are fewer natives on this island than on St. Paul, the work is not decreased proportionately; in fact, much of the general routine is equal to that on the other island, and, under present conditions, the caretaker must neglect certain other features of the work in order to look after the store accounts.



ST. PAUL VILLAGE FROM NEAR BOAT LANDING



ALEUT CHILDREN, ST. PAUL ISLAND.

PHYSICIANS.

The need for competent physicians on these islands is very definite, and there is the most urgent need for retaining men who are capable and ready to help raise the physical and moral condition of these natives. Their plight in many cases is pitiable, and without visiting the islands it is hard to realize that with only 200 inhabitants on St. Paul and with only a few over 100 on St. George there is more work at times than the physicians can attend to, even on the smaller island. From a humane standpoint, as well as because of the need for keeping these men and women well and strong, they deserve every assistance and help from the Government. Until recent instructions were given there was no place outside of the natives' homes where the sick could be treated and kept under the constant observation of the physician. This has been a great handicap many times, not only because the physicians should have had serious cases close enough to care for them, but also because the insanitary and ill-ventilated condition of the patients' homes has worked against their recovery, thus making it doubly difficult for the physician. On St. Paul Island this fall a small, abandoned building was moved close to the physician's quarters, placed on a new foundation, and fixed up as well as it could be with the material at hand, to be used for cases that needed isolation and special care. This so-called hospital should be made larger and fitted out, not expensively, but with the conveniences that would prove highly helpful from every standpoint to both patients and attendants. To-day the physicians—medical-school graduates—receive but \$1,500 per annum. They are underpaid and at times overworked. An advance to \$2,000 would be wise and desirable.

HOSPITAL STEWARDS.

It is urged that as soon as practicable an appropriation be made for a hospital steward for each island, to act as nurse and assistant to the physician in charge. They would not only assist with operations and care for serious cases, but their help in placing and keeping the natives' houses in a sanitary condition would prove of the greatest value. I suggest for them a salary of \$1,000. Beyond the facts that the natives are dependent on the Government, which is responsible for them, and that from a humane standpoint, as men and women, they should be looked after, they will be infinitely more valuable to the United States as healthy and strong people than as the sick and puny specimens which many of them are to-day, due largely to neglect.

NEED FOR A TEMPORARY DENTIST.

There are at present no facilities on either island for having dental work performed. This causes an unnecessary hardship, not only to the natives, but to the Government officials as well. A competent dentist should be sent to the islands each summer for such professional work as might be required. He should be given a temporary appointment and paid from the general appropriation covering miscellaneous expenses incurred in connection with the administration of the Pribilof Islands.

OFFICERS' QUARTERS.

The Pribilof Islands are a valuable asset to the United States, being worth millions of dollars. Their value is hard to estimate, as it is increasing rapidly every year. This year's experience has proved the fact that the Government can not afford longer to neglect the islands by not placing them in the hands of the best possible people, and it should provide for them adequate, convenient, and sanitary quarters, such as it would give men in similar posts in the States. Of all the superintendent's houses I have seen at the Government hatcheries throughout the United States, and even in Alaska, any one would be splendid accommodations for the staff on the Pribilof Islands, compared with the quarters now offered employees there.

The houses occupied by the Government employees on St. Paul Island known as the "Company house" and the "Government house" are in some ways a disgrace. The lack of facilities is most evident. There are no bathrooms, no running water, and both houses are in great need of repair. It should not be asked of any officer of the United States Government to accept the inconvenience or put up with the humiliations imposed on those who go to the Pribilof Islands to-day in the interests of their country. There is practically no privacy, and no conditions that would go to make up a pleasant and attractive home. There is most urgent need for new officers' quarters, with suitable, restricted and private quarters for the various Government officials, so they will not be inconvenienced and embarrassed and made uncomfortable, as under the present conditions.



GORBATCH ROOKERY, ST. PAUL ISLAND.



BRANDING A FUR SEAL, PRIBILOF ISLANDS.

On St. George Island, where the population is about half as large as on St. Paul, the natives occupy similarly crowded quarters. I saw some greater degree of cleanliness than on St. Paul, but many of the houses are overcrowded and should be enlarged; in other cases their entire removal would be wise and economical. The "Government house" and the "Company house," like those on St. Paul, are in need of repair. Not only is there necessity for new quarters for officers on St. George, but they should be built with proper facilities and running water. To-day the inconveniences are evident and humiliating. The old storehouse should be altered, and the great need of a new warehouse is apparent. In connection with this it would be well to demolish the central portion of the old warehouse, known as the bidarra house, leaving the salt house and coal house as separate buildings, to face north and south, and to erect a warehouse between or alongside of them. At the present time they are all connected as one building, and the dampness from the salt house injures everything placed in the building. The schoolhouse, while temporarily fixed up for the increased number of children who must be afforded the advantages of an education, should be enlarged. There were five pupils this year who had no desk room, and in this emergency the caretaker was instructed to prepare such desks as would temporarily carry them over the winter.

JANITOR SERVICE.

One of the things that impressed me forcibly is that so little was known or understood in Washington regarding the administration of affairs on these islands. The Government employees in charge of the islands, and even guests or special callers in the Government houses, who remain on these islands, are compelled to get up in the morning and make their own fires, and take out ashes, because sufficient provision has not been made for janitors to do this and other similar labor. It might be interesting to know that on account of the prevailing damp and chilly weather, a fire is required in these buildings the year round. Not thinking for a moment that the small amount could not be used from the general fund, orders were given to employ on St. Paul Island a native janitor at \$15 a month, his duties to consist of making fires, carrying out ashes, cleaning windows, sweeping, hauling coal and water; in fact, doing anything he was called upon to do. But because of the law, my order was declared illegal. This native was not only to perform the above duties, but, in addition, was to care for the physician's house, keeping his fire burning in the office, which is but essential and just. The physician during the winter months is often called from his home, perhaps early in the morning, and does not return for some hours; then he must come into a cold house, clean out the ashes, and make a fire. This is another evidence of false economy, not to mention the injustice to the men in the employ of the Government who have more important things to do and should not be called upon to do this menial work.

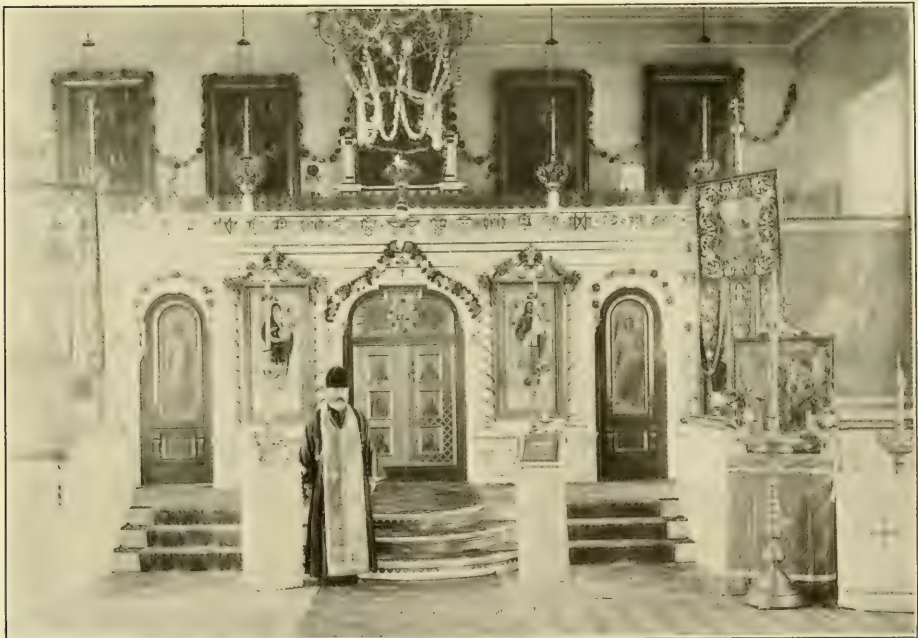
SEAL MEAT.

The question of handling the seal meat after the skins are removed is most interesting, and many points are involved. In the past the careless method used in dividing this meat among the natives has caused much loss and a scarcity when the killings were small. This was due partly to the fact that no system was used, and also to the lack of ice for preserving purposes. While on St. Paul Island I looked into the matter of an ice house to keep this meat for future use, and found nothing but a broken-down grass hut situated over a mile from the village. Finding lumber that was practically of no value, instructions were given to erect an ice house at once so that a sufficient supply could be placed in it this winter to help in keeping the meat another summer when the days get warmer. Directions were also given for the agent to appoint a capable man from among the natives as a butcher, who would direct the cutting up of the seal carcasses and deal the meat out without waste to the natives as they wanted it.

The question of seal meat brought up two more important features—first, that when commercial killing is resumed there will be a considerable surplus, and after the natives have their supply for the year, enough should be set aside and prepared as jerked or dried seal meat for food for the foxes on both islands; and second, after this allotment is made, there will be in time to come many hundreds of carcasses in excess of the number which may be utilized for those purposes. I was attracted by the taste of the seal meat and could see a possible commercial value in it as food. For example, suppose there were 25,000 carcasses not needed for the natives or the foxes. I believe they could be brought down to the States, or even to southeastern Alaska, and sold at a profit of perhaps \$1 apiece. This meat is not strongly flavored, nor in any way unpleasant to the taste or to the sight, and there are many people who are fond of game who would gladly pay the price in a first-class hotel for a seal steak.



VIEW OF ST. PAUL VILLAGE.



INTERIOR OF RUSSIAN GREEK CHURCH, ST. PAUL ISLAND.

FOXES.

The question of the foxes on the islands is interesting, as the prospects are bright. On St. Paul Island to-day they are raised at very little expense to the Government. Owing to a favorable topographical feature—the existence of a large beach area—they practically feed themselves. The question of the number to be killed each year should be decided by the man in charge on each island, and he should be thoroughly familiar with the situation and know what the resources are and what should be left for propagating purposes. There is no doubt in my mind but that with the very healthy condition that obtains with the St. Paul herd the supply on this island can be increased.

The condition of the fox herd on St. George was, unfortunately, not so good. Partly owing to some fault in feeding, a great many died the previous winter; but it is hoped and believed that the trouble is now understood and will not occur again. On account of the many steep bluffs and the fact of a general absence of natural food for these foxes, they have to be fed during the winter months. It is planned to send to this island some new breeding stock from St. Paul Island, and there is no reason why the herd should not in the near future be as good and as paying as the one on St. Paul, though perhaps not so large.

The question of selling a portion of these foxes on bids to those who care to embark in fox farming in Alaska is admirable, but it should be done with discretion and in no way interfere with the future supply on each island; furthermore, they should be sold only to people who are engaged in legitimate business in Alaska, and not used for shipping outside of the Territorial limits.

REINDEER.

There is nothing that will prove more beneficial to both islands than the already established herds of reindeer. On June 30, 1914, there were 75 on St. Paul Island (51 old and 24 young ones) and 58 on St. George Island (37 old and 21 young). They are all doing well, have an abundance of food, and the prospects are bright for their proving of great benefit to the natives and also to Government officials.

POSSIBILITY OF CATTLE RAISING.

An item in connection with the economic resources of the islands that impressed me very much is the prevalence during four or more months of the year of a most luxuriant growth of grass upon parts of both islands. The fact that the reindeer do not disturb or eat it, subsisting principally upon the reindeer or white moss, suggested the question as to whether this grass could not be utilized in the summer for feeding a certain number of cattle, by cutting a portion of it and making ensilage, without much cost to the Government. A few hundred dollars would assure a practical trial, which might mean the establishment of a herd of cattle on these two islands that would be not only beneficial to the islands but another source of income to the Government.

ROADS FOR ST. GEORGE ISLAND.

The fact that there is no road on St. George Island is unfortunate. The greatest evil of this is that the seals have to be driven so far from the rookeries, otherwise the natives would have to carry the carcasses and skins. The present driving method requires much time and is also detrimental to the seals. In view of these facts, it would seem highly desirable that two first-class mules be purchased and sent to St. George Island next spring. With these mules the natives would be enabled to construct roads which would be very advantageous, as already outlined, besides giving work to the men.

SUPPLY SHIP.

The question of chartering a ship to carry supplies from the States to the Pribilof Islands each year is a serious one. It has cost the Government more than \$100,000 in five years to make these trips. Thirty-five per cent of this cost is incurred because of the antiquated and impracticable manner of unloading the supplies. To give those who are not familiar with conditions an insight as to how the supply ship is unloaded, I will explain. The vessel lies offshore from one-half mile to one and one-quarter miles, necessitating trips of a small, slow launch to draw a bidarra, or native skin boat, back and forth from this vessel. Fair progress is made if the water is still and nothing arises to hinder the trips, but quiet days are not common, and the result is that for days at a time no unloading can be done, the consequence being that



SEA LIONS IN WATER AT SEA LION ROOKERY, PRIBILOF ISLANDS.



NATIVE METHOD OF CURING SEA LION SKINS, PRIBILOF ISLANDS.

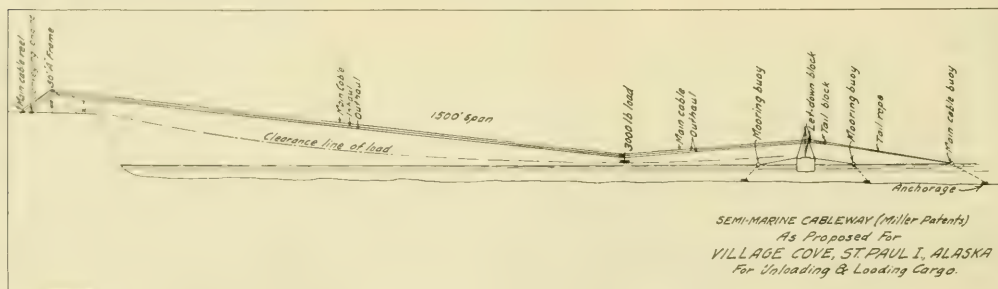


BIDARRAH MADE FROM 17 SEA LION SKINS. THE WHITE MARKINGS ARE NOT SYMBOLIC SIGNS, BUT INDICATE PATCHES. ST. PAUL ISLAND.

the supply ship lies at anchor at a cost to the Government of \$250 or more a day. It took 23 days to unload this vessel at both islands this year. The sentimental part of this work—the use of the native skin boat—should be eliminated, not only for the reason set forth, but owing to the fact that bidarrahs are expensive to build and maintain, requiring a large number of sea-lion skins for their construction, and more or less repairs are necessary every year.

AERIAL CABLE FOR UNLOADING SHIPS.

To improve existing conditions it would appear feasible to erect at both St. Paul and St. George Islands an aerial cable that will permit the unloading of supplies from a vessel in a total of four or five days for both islands. The cost of installing these cables would be in the neighborhood of \$25,000, and as the unloading under the present system has been costing from \$6,000 to \$7,000 per year, it can be seen at a glance that the Government would soon be repaid for the installation of this new system. It would also prove of advantage when commercial killing of seals is resumed, for the ship that would bring the skins down to the States to be sold by the Government could take aboard the casks containing the skins directly from the shore by means of these cables, thereby obviating taking the shipment out to the vessel by many trips of smaller boats. If this suggestion seems a good one, it would be advisable to erect one of these cables at St. Paul Island first. The plan for handling cargo, as here suggested, is entirely feasible and practicable, as shown by similar practices in vogue elsewhere.



LIGHTERS FOR UNLOADING SHIPS.

Another method which is feasible and which would be better than the one in vogue is the use of lighters in landing supplies from the vessels. For this purpose at least three 20-ton lighters should be constructed for each of the two islands, and there should also be one new launch for each island for towing purposes. This equipment could be used to supplement the bidarrahs and old launches now in use. The total cost of these lighters is estimated at \$5,000 and the two launches would cost approximately \$3,000 each.

MIDWINTER SUPPLY SHIP.

The question of landing supplies leads to another feature in the vessel question. It occurs to me that it would be very wise if the Government would arrange for a vessel to go to the Pribilof Islands in January or February of each year. The moral effect would be very good; it would be an incentive and help to the Government officials as well as to the natives. Fresh supplies as well as mail could be sent and the monotony of the long winter would be broken to a considerable extent. On the whole, it would prove highly beneficial at both ends and not be very costly to the Government.

LANDING REGULATIONS.

The matter of landing on the islands should receive more consideration. Stricter regulations should be made permitting nobody but duly authorized officials of the Government to land, and when it is necessary for crews or parts of crews to come ashore the contents of all packages they take back should be examined by the one in charge of each island. And it is just as important that the contents of packages brought ashore by the crews should be scrutinized by the commanding officer of the vessel, for report that liquor



BIDARRAH BEING TOWED BY LAUNCH, ST. PAUL ISLAND.



FUR SEAL ROOKERY ON PRIBILOF ISLANDS.

has been brought to the natives should not occur as in the past, and on account of considerable controversy over the question of the illegal handling of fox and fur-seal skins the inspection of all packages taken away from the islands would eliminate further criticism.

CONCLUSIONS.

The whole Pribilof Islands problem may be summarized thus: *If moral, intellectual, and general conditions are to be improved; if the business of the islands is to be carried on along businesslike lines (and surely the proposition of these islands, including the fur-seal and fox herds, is largely commercial), then the situation must be viewed from an entirely different standpoint than hitherto; for the returns the Government is to receive from its investment warrant the expenditure of a sum of money large enough to give the officials of the Government and the natives civilized surroundings, and provide adequate means and necessary facilities to accomplish a proper administration of the affairs of these islands.*

ADDRESSES TO NATIVES.

Following are my addresses to the natives on both islands, made just before leaving them:^a

ADDRESS TO THE NATIVE MEN OF ST. GEORGE ISLAND, IN THE NATIVE CLUBHOUSE, ST. GEORGE SETTLEMENT, JULY 17, 1914.

Citizens of St. George Island:

I consider it a great honor to be able to address you this evening. Back in my home, near Washington, D. C., before I ever came to the Pribilof Islands, I often wondered if I ever would have the pleasure of visiting you myself. And to have my wish come true greatly pleases me. It gratifies me more than I can tell you that I am here to see you in your own homes.

I can not tell you how much pleasure it afforded me yesterday when I visited most of your homes. All of them were so clean and so homelike that it pleased me beyond words. The wife and the mother make the home, but the husband and son have got to help toward making it bright and cheerful.

I was pleased to go into your schoolhouse. There is no greater obligation on the fathers and mothers to-day than having the children learn the English language. If you want your boys and your girls to grow up and be good citizens of the United States you must send them to school and teach them the English language, and I want you, as the citizens of St. George, to see that your sons and daughters go to school and do their best to learn.

Next, I want to speak to you about the morality on this island. It is the duty of every man here, above everything else, to protect his wife and daughter. It is the law of our country, of which we are a part, that our women shall be protected. You must protect your womanhood from any wrong among them, and you will have protection from the United States Government against any bad white men.

I want to speak to you about drinking; that is, drunkenness. Liquor—beer and whiskey—used for pleasure, hurts the body and the brain. The law provides that when you are sick or have sickness in the family the doctor will give you what you need. That is all right; but drunkenness can not be allowed, because it is against the law of the United States. It doesn't do you any good, and it is a bad example to your children.

The man on this island who is responsible to the United States Government is the agent and caretaker. There is no man whom you should try to help more than this one. He has your interests at heart. He wants to help you. He wants to help your families. He wants to build you up all he can, but you must listen to him and obey him and do as he directs. On the other hand, when you have anything you think is not right, you have a way to bring it to him, and that is through the chief of your tribe.

You have elected your chief because you believe in him. You believe he is an honorable man who will do right by you. And when he is doing right by you he is not only helping your interests, but he is doing his duty by the United States. I am sure your worthy chief and his assistants are going to try harder to help the agent by cooperating with him.

I want to say a word to you about your doctor. Do you realize what he means to you and your family? You should do everything possible to make his work easy and light. You should see that his orders in the sick room are carried out, and do what he tells you to do, because it is for your interests and your family's interests.

I know I bring the good will and the best wishes of the President of the United States, Mr. Wilson, and of the Secretary of Commerce, Mr. Redfield, and of my associate, Dr. Smith, and when I go home with a report of this island and what you and your families need they are going to listen to me, and they are going to try and help you further.

I want to thank you for asking me to speak to you. I consider it an honor, and when I come back here again I hope to find you have done a lot to help this island. Thank you.

ADDRESS TO THE MEN OF ST. PAUL ISLAND, IN THE SCHOOLHOUSE, ST. PAUL SETTLEMENT, JULY 20, 1914.

Citizens of St. Paul:

It is a great honor to be with you this evening. I can't tell you what a great pleasure it is to come all the way up here from Washington and have this talk with you.

I have often looked at your islands on the map in the books down in my State and wished I could be with you, and now I am here, as I have often wanted to be.

I want to talk to you about things that are of great interest to you and which concern you and your families and the United States Government.

I don't want you to think that anything I say is said with any unkindness, because I come here as a representative of the United States Government. I want to speak to you first about your homes, your houses. There is nothing you should have brighter than a

^a Repetitions and unusual construction of sentences in these addresses are due to difficulty in making native interpreter understand me.



BIDARRAH LOADED WITH SUPPLIES LANDING AT ST. PAUL ISLAND.



NATIVES UNLOADING SUPPLIES AT LANDING, ST. PAUL ISLAND.

clean home. It is the means of keeping a good wife good. It is the means of bringing your children up in the right way, and it is the means of happiness and health.

I'm glad to say that some of you men and your wives are setting a good example, but I am sorry to say that some of your houses are not as clean as they ought to be.

It is not too late to correct this, and I want those who haven't clean houses to help their wives to correct it.

Now I want to tell you who can help you do this; it is your doctor and physician. He is put up here by the United States as a Government official. He knows what is best for you and what you need in your homes to keep you healthy and also to get you well when sick.

You must not take any offense at anything he tells you to do, because he has your interests at heart. I ask you to go home and tell the family to help, so as to make your lot happier and better.

Now I want to speak to you about your school. There is nothing any more important than giving your sons and daughters an education. This is offered to them without cost. I want to tell you that the English language is as necessary for your children as any thing in this world, if they are going to be United States citizens. The man and the woman that can speak the best English are the ones that can get the best wages. I want you to do everything with your children to get them to school regularly so they can learn.

The next thing I want to speak to you about is the morality of your community. There is nothing that will ruin any place so quickly as immorality between men and women.

It's your duty as fathers, as husbands, as brothers, to see that your women are protected. And you can't expect them to be loyal to you unless you do protect them. You have a way of doing this. You have the agent to complain to and the laws of the United States will protect you. And I want to tell you, furthermore, that the United States is not going to allow any white man to disturb the sanctity of your homes.

I want to speak to you about your drinking. Drink is the cause of the breaking up of more homes than anything else in the whole world. The instruction sent out here was that nobody is authorized to give anyone a drink except the authorized doctor. The drunken man is a breaker up of the home. He sets a bad example for growing sons and daughters, and what good does he do himself? It's against the law for you to make beer; it's not allowed anywhere else in the United States without a license. I've got to ask you in the name of the Government not to do it any more. If you continue to do it, which I hope you won't, it will be necessary to stop the supply on the island of everything you use in this beer.

I want to speak to you about your duty to the agent. He represents the United States and he is responsible for the way affairs are conducted on this island. He has your interests at heart; I know he wants to do the very best he can for you, but I ask that you do your part and come to him when things don't look right, and then to obey him.

You have a chief; you have elected him the chief because you believe in him. He has an honorable position and I'm sure he is going to do his duty to you as well as to the United States. And I want to say to your chief that it is his duty and right to see that the things I am speaking about to you are carried out; but let him do it by going to the agent and talking it over in a proper way. And I ask you and your families to support the agent and the chief on this island and make a better return than ever before.

I want to speak now about a matter I know is of interest to you all, and that is matters relating to your pay.

While the commercial killing of seals is not going on, you men and your families get paid the same. Don't forget this now, men, when you are called on to do anything you must do it cheerfully and willingly when the agent and the chief call on you. Do you ever realize that this very cargo you are unloading is your own food? And yet you are getting paid 25 cents an hour for unloading it; you get your coal to burn in your stoves; you get your oil. I'm not speaking in unkindness, but you must understand. I don't want this done away with right now, but I want you to appreciate it and to do your best by helping in everything that is done on the island.

The work on the streets, the roads, the trails, the storehouse, schools, and water system are community work and must be attended to.

The Company house, the Government house, and other buildings used exclusively by the Government officials will be repaired by you as usual, and for such service you will receive pay as heretofore. The warehouse, the shop, and the salt house belong to you and these should be community work just the same as anything to do with the seals.

I want to tell you something that you may not realize. You get about \$300—some more, some less—out of the store each year. I want to tell you how much work you do for that; you do less than four days each year a man. I want to tell you how much that is a day; it's over \$80 a day. I just tell you that to show you that you haven't much to complain of and I'm sure you will agree with me.

I want to speak of something else that is very serious and a matter that the United States will not stand for. It's a prison offense and I want to tell you that the first man caught doing it must leave the island. It's killing of seals illegally. You can have all the seal meat you want to eat; that's what we are killing the seals for to-day—your food; but I know last year a great number of you killed puppy seals. It doesn't matter much now who it was; it can't make any difference; we'll forget the past. I do know several men who did it, but they are not going to be punished now; but don't do it any more. When you need meat tell the agent. It's to your interest to protect the seals as much as anybody—you get the meat. I'm going to put everyone of you on your honor now; never break the law again.

There is one thing—it came to my ears that foxes have been killed. No foxes shall be killed unless authorized by the agent; and this is against the law also.

The President of the United States, Mr. Wilson; the Secretary of Commerce, Mr. Redfield; my associate, Dr. Smith, send greetings to you and wish you success and want me to tell you that they wish to help you.

Finally, let me say that I want to help you on this island; you are a part of the United States just the same as I am, and you must do your part.

I want to say again that I appreciate your asking me to speak to you. When I go back I will better understand your affairs, and if I can help you in any way I will do it.

If there are any questions you want to ask now, I will be glad to hear from you—the chief first, and after that his men.



WILD BLUE FOX, ST. GEORGE ISLAND.



ONE HUNDRED AND SEVENTY-FIVE BLUE AND WHITE FOXES, A SEASON'S TAKE ON ST. PAUL ISLAND.



MURRES (ARRA) ON THEIR BREEDING GROUND, WALRUS ISLAND



MURRES (ARRA) ON WALRUS ISLAND, PRIBILOF GROUP, NOTE THEIR YOUNG AND EGGS IN FOREGROUND.



REINDEER HERD, ST. PAUL ISLAND.



A BACHELOR FUR SEAL, ST. PAUL ISLAND.



OLD ICE HOUSE MADE OF SOD, ST. PAUL ISLAND.

SOME NEEDS OF ALASKA.

The needs of Alaska are many, but some are so self-evident as to force themselves upon one's attention. I had an excellent opportunity on my trip this past summer to observe these conditions and to answer questions pertaining to them.

CHARTING AND LIGHTING ALASKA'S COAST.

The greatest need of Alaska is the charting of her coast. The fact that to-day the United States Government has many vessels going to and fro, in and out of Alaskan ports and waters, vessels of the Revenue-Cutter Service, the Navy, the Coast and Geodetic Survey, the Bureau of Lighthouses, and the Bureau of Fisheries, to say nothing of the fleet of commercial vessels, makes one wonder that the Government is willing to so constantly risk many lives and such valuable property in uncharted and dangerous waters. Many of the waters, especially in western Alaska, are not charted, and although there are many very dangerous points there are almost no lighthouses. One hardly realizes the vast amount of shore line—about 26,000 miles, or more than the total coast line of all the States of the country bordering on the Atlantic and Pacific Oceans and the Gulf of Mexico. With the exception of a lighthouse on Hinchinbrook Island and two at Unimak Pass, there are no lighthouses from Icy Strait to Nome, a distance of nearly 3,000 miles, and the region thus neglected is traveled yearly by many fishing and passenger vessels. In view of this condition, it seems remarkable that there have not been more shipwrecks. In recent years there have been lost over 500 lives and property valued at over \$8,000,000. I saw several wrecks of vessels serving as landmarks, and it emphasized to me the fact that, *to insure her development Alaska needs to safeguard her waters, which are the gateway to her vast riches.*

Lighthouses are important; but there is also the urgent and absolute need for wire-drag operations on the Alaskan coast, for the purpose of locating the many unknown pinnacle rocks which are so fatal to safe navigation. This comes home to me, for I myself encountered such dangers, increased by much fog and storm. Three vessels this season went to the bottom by striking these pinnacle rocks and uncharted reefs—the United States revenue cutter *Tahoma*, the ship *Parameta*, and the *Gayhead*, worth approximately \$500,000. It seems marvelous that others escape, though many do not entirely. I heard of a number this summer that “scraped” or “touched” pinnacle rocks. Absolutely no other method but the drag can locate these peaked mountains hidden under the water.

ARE THE FISHING INTERESTS TO LEAVE THE UNITED STATES?

There is another vital matter for Alaska's consideration regarding the protection of certain features of her fishing industry. Seattle is at present the fishing center of the Pacific coast, but is being hard pressed to hold this place, as Prince Rupert, British Columbia, only 90 miles from Ketchikan, and a terminus of the Grand Trunk Pacific Railroad, bids fair to become a formidable rival for the Alaska trade. The fulfillment of such a prophecy is not far off. In fact, it is close at hand, and unless something is done in the way of correcting certain conditions relative to the handling of salmon, halibut, and other fishes after they are caught there will be serious loss in business and trade between Alaska and the States. I mean by this that the American boats, their fishermen, their base of supplies, and the shipping and receiving point for most of their fish will be in foreign waters instead of within our own boundaries. I have thought of several solutions for this approaching condition. To-day Prince Rupert is offering every inducement to the fishing interests to come there, establish their plants, and make it their permanent home, sites being offered at practically no cost. Furthermore, fish may now be shipped into Prince Rupert from Ketchikan and from farther north for \$1.50 a ton, while it costs, including wharfage fees, \$4 a ton to effect delivery at Seattle from Ketchikan and points north of there.

The railroads can help largely to overcome the first problem by offering terminal rates to the people who are shipping from Alaska. This applies especially to shipments from southeastern Alaska. Unless this is done, they can not expect to compete with the Grand Trunk Pacific, or in fact with any of the other Canadian railroads. The present situation and what it is leading to is deplorable and should be dealt with promptly and with the seriousness it deserves.

One of the possible ways of overcoming this anticipated difficulty is for Congress to pass a law requiring all American bottoms to deliver their fish at American ports. But if this is done, assistance in the



WRECK OF A CANNERY SHIP, WESTERN ALASKA.



UNGA, THE CENTER OF THE CODFISH INDUSTRY IN THE SHUMAGIN ISLANDS. ITS GREATEST PRESENT NEED IS A GOVERNMENT RADIO STATION.

shape of equally cheap freight rates will have to be granted by American interests. For example, can anyone conceive of the Canadian Government allowing a Montreal concern to establish itself at Seattle, send its Canadian boats and Canadian fishermen up into Canadian waters to fish, and come back to Seattle to pack their fish and then ship them over an American railroad to an eastern point in Canada? That is just what is going to be done with regard to American boats and fishing industry, if we do not take some action at once.

COAL AND SUPPLY BASE.

The question is often asked, Where do Government vessels get their coal and other supplies? At the present time Unalaska is the base at which revenue cutters and other Government vessels buy a large amount of their coal and other supplies. At this place the Government has paid thousands of dollars to a private company for coal transported from Australia, besides incurring other expenses in paying for privileges received. The price of coal this year was \$12.75 a ton. It is also necessary for all vessels to dock at a private wharf and accept all courtesies in connection therewith. In addition, the harbor is very bad, and the only means of getting in to this wharf is by a very narrow and crooked channel, which is more or less hazardous to a vessel of any size. However, some favorable point in the Aleutian Peninsula is the natural base of supply and is the place for a coming town, for, because of the isolation of this region and its close proximity to the Pribilof Islands, it necessarily becomes a point of interest and value to Government vessels and commercial ships.

Close to Unalaska, in fact almost in sight, is Dutch Harbor, the old home and village of the North American Commercial Co., where now the Government wireless station is located. At the present time this place is practically abandoned. It seems highly advisable that the Government should negotiate at an early date for the purchase of the North American Commercial Co.'s buildings, which are in a fair state of preservation. The harbor is excellent, far better and safer for large vessels desiring to dock there than at Unalaska. There is an abundance of excellent water, which Unalaska lacks. There are also good buildings for living quarters for various Government officials. The headquarters of the Bering Sea fleet of the United States Revenue-Cutter Service is at Unalaska and a number of the officers are stationed there a part of the year. The living quarters afforded them are greatly crowded, and at the same time rent is paid that is hardly justifiable from an economic standpoint. It would therefore be well if the headquarters of these officers could be transferred to Government buildings at Dutch Harbor. The proposal to furnish suitable quarters to the men and their families who are isolated in this western country is warranted and proper. The idea of making Dutch Harbor an ideal Government village is one that should be encouraged, and the opportunity for doing so now presents itself as it may not again for some time to come.

The thousands of tons of coal used by the Government vessels that now enter Unalaska, if transported by Government vessels or colliers and furnished from Government bins at Dutch Harbor, would cost from \$6 to \$7 a ton instead of nearly twice as much. Such a move as suggested would be economical, and the Government would soon be repaid for the initial expense incurred.

The opening of the Alaska coal mines will mean a great saving to the United States Government.

GOVERNMENT WHARF.

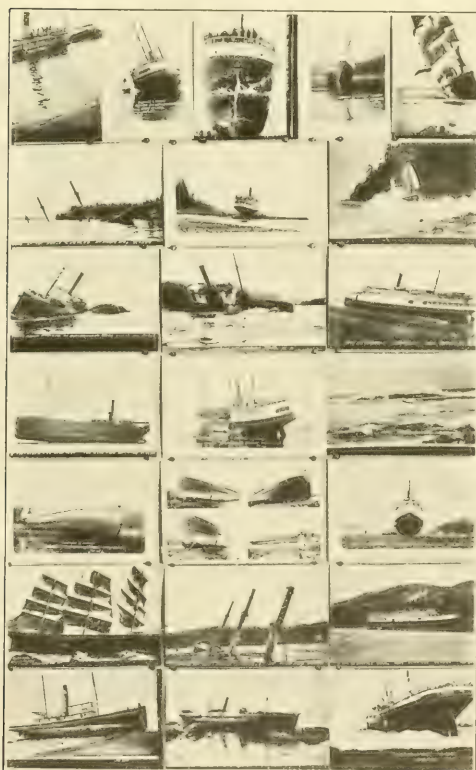
Another matter that was brought to my attention was the absence of a Government wharf at Wrangell. When a Government boat arrives there for coal or other supplies, it must go to a private dock and obligate itself to the extent of buying its coal and perhaps other supplies that are sold at too high a price. I am safe in saying that if the Government had its own wharf, which is perfectly feasible, and marine railways or a small dry dock for repairing smaller vessels, a great deal of money could be saved in the course of a year, in addition to a saving of about \$4 a ton on coal purchased.

WIRELESS STATION AT UNGA.

One of the greatest needs in Alaska came to my attention at Unga village, on Unga Island, the largest of the Shumagin Group. This prosperous little village is the headquarters and home of most of the men engaged in the fast-growing codfish industry. It is the home of a United States commissioner and a deputy marshal, and the jail for the third judicial district of Alaska is located there. The almost complete



U. S. REVENUE CUTTER "TAHOMA" AT UNALASKA SHORTLY BEFORE BEING WRECKED AT AGATTU ISLAND.



SOME OF THE WRECKS OF PASSENGER AND FISHING VESSELS
IN ALASKAN WATERS.



WRECK OF U. S. REVENUE CUTTER "TAHOMA," WHICH STRUCK
AN UNCHARTED PINNACLE ROCK OFF AGATTU ISLAND,
WESTERN ALEUTIANS, SEPTEMBER 20, 1914.



DUTCH HARBOR, ALASKA, 1914. PROPOSED AS A MODEL GOVERNMENT VILLAGE AND BASE OF SUPPLIES FOR WESTERN ALASKA. THESE BUILDINGS ARE NOW PRACTICALLY DESERTED.



A MOST URGENT NEED FOR ALASKA'S DEVELOPMENT—MORE LIGHTHOUSES.



WRANGELL, SUGGESTED AS SITE FOR GOVERNMENT DRY DOCK, FUEL STATION, AND WHARF.



UNALASKA, THE PRESENT BASE OF SUPPLIES FOR WESTERN ALASKA



DUTCH HARBOR FROM THE BAY PROPOSED AS A GOVERNMENT BASE OF SUPPLIES FOR WESTERN ALASKA.

isolation of the village makes its greatest need a wireless station. The nearest point of wireless communication is the Unalga Island wireless station, or the Kodiak wireless station, each of which is 300 miles away. During the summer a vessel calls there every month, but during the winter sometimes two months elapse without a call from the mail boat. This lack of communication was forcibly impressed on me by the fact that a ship that needed help last summer, because of difficulty with the crew, might have communicated readily with this island and received help sooner than it did had there been a wireless station there.

REINDEER.

In western Alaska, where fresh food is scarce and where the Aleuts are really suffering because many former opportunities for making a livelihood are no longer available, there is nothing that will fill the need better than reindeer herds. Everywhere that I came in contact with places where they were established they appeared as a great blessing to these people and will really mean their chief dependence later. It is earnestly hoped that the Government will place a herd of these valuable animals on every island inhabited by Aleuts where there is subsistence for them. *This is real constructive work.*

GENERAL SUMMARY.

In the foregoing report it has been my aim to bring out forcibly the main issues and needs in connection with the fisheries and fur-bearing animals of Alaska, including affairs pertaining to the Pribilof Islands. Attention has also been called briefly to a few highly important needs of the Territory, some of which are but indirectly related to the primary subjects of my investigation. I have endeavored to view all matters from the standpoint of a practical business man, seeking only to suggest simple and direct methods of correcting any existing evils or practices observed, and at the same time to indicate proper needs and ways and means for building up and expanding Alaska's interests as circumstances may permit.

The fact must be thoroughly understood and emphasized, however, that if the laws made by Congress relative to the protection and upbuilding of these resources are to be enforced it is absolutely essential that adequate appropriations be made. It must also be borne in mind that the Government will derive from the fishing interests concerned in this economic and commercial expansion sufficient revenue in fishery taxes and licenses to justify adequate appropriations for their full and undivided support.

The sum herein asked for to cover vessels, increased personnel, and other needs during the coming year amounts to \$218,000. This sum would be largely offset by receipts from increased taxes and license fees, estimated under proposed schedules to be about \$325,000 annually, of which it is further recommended that 30 per cent should revert to the protection of the fisheries of Alaska.

RECOMMENDATIONS.

The following recommendations are submitted:

1. That full control of the fisheries and fur-bearing animals be vested in the Department of Commerce. There should be no division of this authority with other Federal departments or with the Territorial government.
2. That Alaska be divided into five districts for administrative purposes.
3. That herring and the edible portions of other food fishes be not used in the manufacture of fertilizer and oil and that all plants at present operating contrary to this requirement be closed at once.
4. That there be a just and fair revision of the schedule of taxes on fishery products.
5. That a license tax be imposed upon all fishing gear.
6. That, in addition to present appropriations, 30 per cent of the license fees and taxes revert to the protection of the fisheries.
7. That markers or monuments be established by the Government to fix the mouth of each salmon stream.
8. That all power-boat trolling be forbidden.
9. That the customs authorities refuse to issue manifests for shipments of fishery products from Alaska until the tax has been paid.
10. That falls and other natural barriers in certain streams be removed.

11. That at least five new Government hatcheries be built in places not at present receiving the benefit of fish-cultural operations.
12. That the rebating system for the release of fry from private hatcheries be discontinued and that all hatcheries be operated by the Government. A board of three from the Bureau of Fisheries should examine these private hatcheries with the view of determining their value and their suitableness for future operation by the Government.
13. That the taking of salmon for commercial purposes cease each season after certain specified dates, for three districts in southeast Alaska, as follows: Juneau district, August 20; Wrangell district, September 1; and the Ketchikan district, September 10. For the remainder of Alaska the closing date should be August 10, with the exception of Kodiak Island, which should be August 25.
14. That the present weekly close season of 36 hours be increased to 48 hours.
15. That the present law be amended so as to prohibit aliens from engaging in the actual catching of fish.
16. That no fish trap, purse seine, or haul or beach seine be operated within half a mile of the mouth of any salmon stream.
17. That the leads of fish traps be limited to a maximum length of 2,500 feet, except in Bering Sea waters and tributaries, where a maximum length of 3,000 feet should be allowed.
18. That the lateral distance interval between all fish traps be at least 4,000 feet, and that the endwise distance between traps be 1,000 feet or more.
19. That jiggers on fish traps be limited to a length of 50 yards.
20. That holders of fish-trap sites be protected in their rights, but that no permanent title to such sites be allowed.
21. That the present law regarding the full opening of 25 feet in the heart walls of traps be enforced literally.
22. That the minimum length of seines be 100 fathoms, thus discouraging their illegal operation in streams.
23. That gill nets be operated at least 200 yards apart instead of 100 yards as at present.
24. That 11 new vessels for fisheries protective work be built, at a cost of \$156,000.
25. That the steamer *Osprey* be remodeled at a cost of \$12,000 and that the *Albatross* be converted to burn fuel oil at a cost of \$26,000.
26. That the pay of officers and crew of the Bureau's vessels in the Alaska service be increased and that subsistence be allowed.
27. That the canning or salting of salmon that have been out of the water not longer than 60 hours be permitted, but that no fish shall be prepared for food purposes if unfit, irrespective of the time when killed.
28. That no protection be afforded gulls and similar waterfowl destructive to young fish and fish eggs.
29. That a bounty be placed upon wolves.
30. That there be enacted added legislation for the further protection of fur-bearing animals.
31. That the Government encourage fox farming in every possible way.
32. That the Executive order creating the Aleutian Islands Reservation be adjusted so that full authority with regard to fur-bearing animals shall rest in the Department of Commerce.
33. That more liberal legislation be enacted in respect to the natives of Alaska.
34. That in regard to the Pribilof Islands there should be—
 - (a) New buildings for employees and natives.
 - (b) Increased school facilities.
 - (c) Absolute prohibition of all native beers and liquors.
 - (d) Creation of occupations for natives.
 - (e) Construction of roads on St. George Island and the acquisition of a team of mules.
 - (f) Creation of offices of superintendent and assistant superintendent for each of the two islands.
 - (g) Salary increases for physicians.
 - (h) Appointment of a hospital steward for each island.
 - (i) Employment of a temporary dentist each season.

(j) Full pay to natives for all work, they to purchase all rations and supplies from Government stores at cost.

(k) Improved methods and facilities for discharging and landing cargo at the islands.

(l) A shipment of fresh supplies at some suitable time in the winter season.

35. That among general needs of Alaska are—

(a) Better charting and lighting of the coast.

(b) Possible legislation to retain fishing interests in this country.

(c) Purchase of Dutch Harbor as a base of supplies for Federal activity in western Alaska.

(d) A Government wharf at Wrangell.

(e) A Government radio station at Unga.

(f) Introduction of reindeer upon all suitable islands inhabited by natives.

Respectfully,

E. LESTER JONES,

Deputy Commissioner of Fisheries.

Hon. HUGH M. SMITH,

Commissioner of Fisheries.

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